ECONOMIC CIRCUMSTANCES
IN
NORTHWEST TERRITORIES

PREPARED BY:
RONALD FOURNIER
REGIONAL ANALYSIS BRANCH
DREE WESTERN REGION HEADQUARTERS

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INTRODUCTION

The purpose of this report is to update the original Northwest Territories study, to reflect current economic conditions, and to expand on economic development prospects.

As such, the objective of this paper is to provide the Department of Regional Economic Expansion with a brief, up-to-date survey of background information which it will require in the performance of its task. It is also expected to inform those directly involved in the northern economy of the more important facts about the resources, the people, the infrastructure, and give an indication of some of the more difficult problems which must be overcome.

The study is based upon library research, information derived from various federal and territorial government publications and from many people familiar with the Northwest Territories. Because the economy of the north is in a continuous state of change, the description in this study of its state can be considered current only to December 1979.

In Chapter II, the demographic profile of the Northwest Territories is discussed. Included in this chapter is background information about the growth of the population since 1881, age/sex distribution, ethnicity, migration trends, and a demographic overview. Chapter III provides information about the labour force which includes participation rates, unemployment rates and a brief scenario of future labour force entrants. Chapters IV and V describe the nonrenewable resources of the Northwest Territories -- mining and oil and gas. Background information is given in both chapters as well as the present status of production. Potential developments related to both sectors are discussed as well as constraints to development. Chapters VI through X discuss current and potential developments within the various renewable resource sectors. These sectors are: forestry, fishing, hunting and trapping, agriculture and tourism. Chapters XI and XII examine manufacturing and electrical power in the Northwest Territories. Related issues on both sectors are discussed as well as potential developments. Lastly, Chapter 13 discusses the four main modes of transportation in the territory, keeping in mind their overall importance to the territorial economy.

Area

The Northwest Territories covers a total area of approximately 3 379 684 square kilometers or just over 34 percent of Canada's land area. Of this total, approximately 3 246 390 square kilometers are land and 133 294 square kilometers fresh water. Surface land uses in the territory are outlined in Table 1.

Physiography

The mainland of the territories consists of two major geological regions, the Precambrian or Canadian Shield and the Interior Plains. The mountainous Cordilleran region forms the great divide between the territories and Yukon.

The Precambrian Shield extends from Great Slave Lake in the west to Baffin Island in the east. The Shield presents a rugged and barren landscape characterized by rolling hills, valleys and rivers. The western edge of the Shield borders the eastern shores of Great Slave and Great Bear Lakes, 28 570 and 31 328 square kilometers respectively.

The Interior Plains lie between the Shield and the Cordilleran region of the western mountains. Within the territories, they are dominated by the Mackenzie River which is 4 241 kilometers in length and entirely navigable.

SURFACE LAND USES IN THE NORTHWEST TERRITORIES

	Square Kilometers	Percentage of Total
Total area	3 379 684	100.0
Land area	3 246 390	96.0
Freshwater area	133 294	4.0
Agriculture		
Total area of holdings	338.00 ha	100.0
Improved land	242.10 ha	71.5
Unimproved land	95.95 ha	28.5
Forestry		
Total forest land	547 116	-
Nonreserved	504 017	-
Crown federal	504 017	-
Parks		
Total area of parks	71 215	100.0
Nahanni National Park	4 765	6.7
Wood Buffalo National Park	44 980	63.3
Auyuittug National Park	21 470	30.0

Sources: Statistics Canada; Canada Year Book 1978-79

Swan, Hedley; Federal Lands: Their Use and Management; Environment Canada, 1978

Explorer's Guide 1979, Canada's Arctic Northwest Territories; Travel Arctic, Yellowknife, Northwest Territories

Northwest Territories Statistical Abstract 1973 and 1977; Department of Indian and Northern Affairs

DEMOGRAPHIC PROFILE

Background:

The population of the Northwest Territories grew from approximately 5 000 people in 1881 to slightly over 12 000 people in 1941. The major factor causing this increase was the Eskimo and Indian population which climbed from less than 5 000 in 1881 to over 9 000 in 1941. The white population increased from 137 in 1901 to almost 2 300 in 1941 and accounted for only 20 percent of the entire 1940 population.

The major reason for the Indian-Eskimo population increase was the improvements in health and medical care and the decrease in deaths by famines. The mining developments of the 1930s were the major factor which attracted the bulk of the white population.

Between 1951-76, the Northwest Territories had the highest population growth rate in Canada. In the period between 1971-76, this growth rate was 22.4 percent and was followed in order of magnitude by Yukon, Alberta and British Columbia. It must be noted that, as impressive as this rate may be in sheer numbers, the population of the Northwest Territories is still very small in comparison to the provinces.

Age-Sex Distribution:

The distribution of population by age and sex represents the most fundamental of vital statistics. In the following section, these two variables will be discussed as they relate to the Northwest Territories and Canada as a whole.

Sex Ratios:

Until quite recently, the demographic history of the Northwest Territories has been characterized by an excess of males. Thus, over the past 80 years, the sex ratio (number of males per 100 females) has fluctuated extensively from a high of 139 in 1956 to a low of 102 in 1901. By 1978, the sex ratio has been estimated to be 109.

Age Structure:

A population is considered old or young depending upon the proportion of people at different ages. In general, a population with more than about 35 percent of its people under age 15 is "young", and a population with more than about 10 percent of its people aged 65 or older can be considered "old". In the Northwest Territories, the proportion of the age group 0-14 in the total population fell from 42.9 percent in 1971 to 38.6 percent in 1976. For Canada as a whole the proportion fell from 29.6 percent to 25.6 percent in each of the respective years.

The adult population (generally regarded as 15-64 years) increased substantially during the 1971-1978 period. This group comprised 58.8 percent of the total population in 1976 compared with 54.9 percent in 1971. For Canada as a whole this group comprised 65.6 percent of the total population in 1976 compared with 62.3 percent in 1971.

The growth of the junior working ages (20-34) is of particular significance in the context of Canada's employment situation. In 1976, the count for this population group in Canada was 5 754 000 compared with 4 779 000 in 1971, a 20.4 percent increase. In the Northwest Territories this group numbered 8 965 in 1971 and by 1976 this group had grown to 11 790 a 31.5 percent increase.

The aged population, persons 65 and over, increased 14.8 percent in the period 1971-1976 from 1 744 000 to 2 002 000 for Canada as a whole. During this same time period persons 65 and over in the Northwest Territories increased by 50.6 percent, from 750 to 1 130. In 1976, the Canadian proportion of aged persons in the total population was 8.7 percent compared with 8.1 percent in 1971. In the Northwest Territories the proportion of aged persons was 2.7 percent in 1977 and 2.2 percent in 1971.

Ethnicity:

The ethnic composition of the Northwest Territories has changed considerably because of many factors including differences in birth rate and immigration. Trends in recent years have been characterized by a decline in the proportion of native population groups and a corresponding increase in the "other" category. Thus, from 1941 to 1971 ethnic rates

of growth were: Treaty Indians, 64 percent; Inuit, 3 percent; and other, 60.8 percent. As a result of heavy immigration mainly from southern Canada, the present native population of the Northwest Territories represents only slightly more than 50 percent of the territorial population.

Migration:

Besides the vital components of population change, the flows of population through interprovincial migration have greatly affected the territorial demographic profile. This section provides data on the numbers and characteristics of in-migrants to the Northwest Territories as well as estimates of the number of out-migrants.

Most of the recent information about migration into and within the Northwest Territories comes from two major sources: interprovincial migration of children in the Family Allowance Programme, and new registrants to the territories' Health Care Plan.

Explaining migration requires an examination of in-migration as well as out-migration from the territories. The propensity to migrate is influenced by a complex set of socioeconomic variables. Over time, the most frequently heard explanation for migration has been the push-pull theory, which states that some people move because they are pushed out of their former location, whereas others move because they have been pulled or attracted to some place else. Generally speaking, pull factors have been seen as more important than push factors because of the inherent desire in most people to better themselves in material respects.

Origins of In-Migrants:

As of 1978, the greatest number of migrants have originated from British Columbia and Alberta. However, for 1978 proper, Alberta contributed the greatest number of migrants, 30.5 percent of the total, followed by Ontario (18.5 percent) and British Columbia (12.7 percent). In absolute numbers of in-migrants, the greatest growth was demonstrated by Ontario, at 11 percent a year. In relative terms, the most rapid growth was seen in the number of migrants from Newfoundland while Prince Edward Island contributed the fewest migrants to the territories.

Destination of Outmigrants:

Over the years, Alberta and British Columbia have been the greatest gainers of outmigration from the Northwest Territories. Proximity, former residences and generally favourable economic conditions in both provinces have been major contributing factors for this particular migratory flow. In the case of Alberta, the province is attracting more outmigrants than inmigrants into the territories. Generally, the western provinces, taken as a whole are gaining more migrants than they are losing to the Northwest Territories. In the period 1977-1978 the Northwest Territories had a net inmigration of 1 621 from the four western provinces. During this same period the territories lost 2 261 people through outmigration to the western provinces resulting in a net loss of 640 people.

Migration Trends:

1. The number of persons entering the Northwest Territories has decreased at an annual rate of 11 percent between the years 1976-1978. This compares with an overall decline in Family Allowance records of 10 percent between 1975 and 1978.

2. Migration to the Northwest Territories tends to be selective especially when it is associated with different stages in the life cycle. Between 1976 and 1978, 61 percent of all inmigrants were termed non-family (includes married couples without children). Thus, the Northwest Territories attracts a disproportionately large number of young people.

Demographic Overview:

The Northwest Territories is home to just over 46 000 people at the present time. That compares to 34 800 in 1971 and 23 000 in 1961. It is a very young population, with slightly over 50 percent of the population under the age of 25 years. There is still more males than females but the figure ratio is slowly declining. About 21.5 percent of the population or 9 981 people live in Yellowknife. Other large centres include Hay River (3 398), Inuvik (2 938), Frobisher Bay (2 693), Fort Smith (2 347), Pine Point (1 763) and Rae/Edzo (1 269). The rest of the population is scattered throughout the territory in many communities all under 1 000 in population.

The Native population makes up just over 50 percent of the population. In 1971, the Indian percentage was 20.6 percent, the Eskimo was 32.8 percent and the "other" category was 46.6 percent. Within the next decade the "other" category is expected to make up the majority of the population.

In 1976, the Northwest Territories had 0.19 percent of the entire Canadian population. By the year 2001 this percentage will vary from a projected high of 0.29 percent to a low of 0.23 percent. Similarly, the population is expected to increase to between 48.0 and 54.4 thousand by 1985 and between 64.0 and 87.0 thousand by 2001.

Generally, the population of the territories is quite transient in nature with a fairly high turnover of people employed in the mining and government sectors. The average stay in the north is between 3-5 years according to the latest estimates.

Table #1

DEMOGRAPHIC STATISTICS - N.W.T.

N.W.T. POPULATION BY SEX - CENSUS YEARS 1901 - 1976

Year	POPULATION		
	Total	Male	Female
1901	20 129	10 176	9 953
1911	6 507	3 350	3 157
1921	8 143	4 204	3 939
1931	9 316	5 012	4 304
1941	12 028	6 700	5 328
1956	16 004	9 053	6 951
1961	22 998	12 822	10 176
1966	28 738	15 566	13 172
1971	34 805	18 280	16 525
1976	42 610	22 450	20 160

1901 to 1976 -- Statistics Canada, Census of Canada

1977 to 1978 -- Department of Planning and Program Evaluation, Government of the Northwest Territories.

Table 2

POPULATION DISTRUBITION BY AGE, SEX AND ETHNICITY

NORTHWEST TERRITORIES, 1978

Age Group	Sex/Ethnicity							
	Male				Female			
	Indian	Inuit	Other	Total	Indian	Inuit	Other	Total
0-4	490	1 209	1 127	2 825	508	1 114	1 113	2 735
5-9	546	1 156	1 138	2 840	524	1 135	1 085	2 745
10-14	523	119	1 071	2 714	487	1 142	968	2 597
15-19	454	844	1 272	2 570	500	861	1 059	2 420
20-24	285	609	1 669	2 563	343	613	1 363	2 319
25-29	296	607	1 634	2 537	300	608	1 552	2 640
30-34	248	484	1 145	1 877	218	456	1 056	1 729
35-39	211	402	855	1 467	196	395	705	1 296
40-44	225	319	759	1 303	210	322	583	1 115
45-49	156	239	603	998	161	213	431	805
50-54	132	226	455	813	152	173	326	651
55-59	99	178	320	597	81	131	258	470
60-64	113	109	194	416	78	91	153	323
65plus	277	146	230	653	271	152	139	562
TOTAL	4 054	7 647	12 471	24 172	4 028	7 407	10 791	22 226

Note: - Rounding may introduce marginal totals not the sum of their individual cells

- all data has been statistically estimated

Source: Department of Planning and Program Evaluation, Government of the Northwest Territories

Table 3

POPULATION DISTRIBUTION BY AGE AND ETHNICITY

NORTHWEST TERRITORIES, 1978

Age Group	Number			Total	Percent of Age Group		
	Indian	Inuit	Other		Indian	Inuit	Other
0-4	998	2 323	2 239	5 560	17.9	41.8	40.3
5-9	1 070	2 291	2 223	5 584	19.2	41.0	39.8
10-14	1 011	2 261	2 039	5 311	19.0	42.6	38.4
15-19	954	1 705	2 332	4 990	19.1	34.2	46.7
20-24	628	1 223	3 032	4 882	12.9	25.1	62.1
25-29	596	1 215	3 186	4 997	11.9	24.3	63.8
30-34	465	941	2 200	3 606	12.9	26.1	61.0
35-39	407	797	1 559	2 763	14.7	28.8	56.4
40-44	435	641	1 342	2 418	18.0	26.5	55.5
45-49	317	452	1 034	1 803	17.6	25.1	57.3
50-54	284	399	781	1 464	19.4	27.3	53.3
55-59	179	309	578	1 067	16.8	29.0	54.2
60-64	191	200	347	738	25.9	27.1	47.0
65plus	548	298	369	1 215	45.1	24.5	30.4
TOTAL	8 023	15 054	23 262	46 398	17.3	32.7	50.1

Note: - rounding may introduce marginal totals not the sum of their individual cells

- all data has been statistically estimated

Source: Department of Planning and Program Evaluation, Government of the Northwest Territories

Table 4

MIGRATION OUT OF AND INTO THE NORTHWEST TERRITORIES

BY ADULTS IN CANADA, BY PROVINCE AND TERRITORY - 1976/78

Province	In Migration		Out Migration		Net Effect	
	1976/77	1977/78	1976/77	1977/78	1976/77	1977/78
Newfoundland	86	92	45	38	41	48
Prince Edward Island	9	5	9	4	0	1
Nova Scotia	96	38	56	94	40	56
New Brunswick	32	94	38	9	6	85
Quebec	140	178	138	83	2	95
Ontario	483	527	318	382	165	145
Manitoba	221	206	108	163	133	43
Saskatchewan	157	197	250	196	93	1
Alberta	1 026	889	1 266	1 394	240	505
British Columbia	390	329	576	508	186	179
Yukon	100	53	114	180	14	127
TOTAL	2 740	2 608	2 918	3 051	178	443

Source: Statistics Canada, International and Interprovincial Migration in Canada; Catalogue 91-208

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- Canada Year Book 1978-79, Cat. No. CS11-202/1978;
- 1976 Population Breakdown for Selected Communities of NWT;
- Census of Canada 1971;
- Population 1971-1978, Cat. No. 91-518;
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- International and Interprovincial Migration in Canada, Cat. No. 91-208.

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Labour Force:

Between 1953 and 1976 the labour force in the Northwest Territories grew at an average annual rate of 3.7 percent, while the total labour force for Canada grew 2.3 percent per year. The two main reasons for the rapid growth in the labour force is the increasing number of persons coming of labour force age plus positive net migration in response to new job opportunities in the region.

Participation rates may be determined given the active labour force size compared with the potential labour force. In 1971, the participation rate was 58 and 55.4 percent respectively for Canada and the Northwest Territories. In 1976, the participation rate was 60 percent for Canada and 64.8 percent for the territories. In 1976, the potential labour force was 25 710 out of a total population of 42 710. The actual labour force was 13 980 or 54.4 percent of the potential labour force.

According to the Territorial Employment Record Information System, the unemployment rate in 1976 was approximately 18 percent. The unemployment rates for the Native groups were distinctly higher than those for the "other" groups. Native groups also tended to have fewer full time jobs when compared with the "other" classification. It should be noted however, that an unemployment rate is difficult to determine and generally misleading in an economy like the territories where subsistence hunting and fishing are present. Similarly, the duration of employment must be taken into consideration because much of the employment is seasonal or of varying terms. Further, there are significant geographic variations in employment activity which makes it difficult to render accurate employment figures.

The labour force was 13 980 in 1976 an increase of 2 955 over 1971. Of the 25 000 or so persons aged 15 years of age and over, about 12 000 are "regularly" engaged in "wage" employment.

The labour force of the Northwest Territories is heavily dependent upon the government sector and to a lesser extent on mining for employment. Government agencies, federal, territorial and municipal employ in

excess of 5 500 employees while the mining sector employs 1 752 persons. These two sectors alone provide employment for over 50 percent of the entire labour force.

In the short run, it is expected that the labour force will continue growing rapidly. To illustrate this it has been estimated that the number of people of working age population in the Mackenzie Valley will increase by approximately 30 percent or about 3 000 persons between 1977 and 1982. For the Territory as a whole, new labour force entrants are expected to average about 1 000 per year over the next ten years or more.

Table #1

POTENTIAL AND ACTUAL LABOUR FORCE 1976

NORTHWEST TERRITORIES

	NATIVE			OTHER			TOTAL		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Total Population	13,620	12,810	26,430	8,970	7,310	16,280	22,590	20,120	42,710
Potential Labour Force (15 yrs & over)	7,820	7,240	15,060	5,940	4,710	10,650	13,760	11,950	25,710
Labour Force	3,840	1,570	5,410	5,740	2,830	8,570	9,580	4,400	13,980
Percent of Potential	(49.1%)	(21.7%)	(35.9%)	(96.6%)	(60.1%)	(80.5%)	(69.6%)	(36.8%)	(54.4%)

Source:

1. Estimated Population figures for 1976 have been extracted from Projection A, Population Projections of the N.W.T. to 1981 (Lu and Mathurin).
2. Potential Labour force refers to population 15 years of age and over.
3. Labour force refers to persons 15 years and over who work for pay or profit, help in unpaid family work, look for work, are on temporary lay-off or have jobs from which they are temporarily absent because of illness, vacation, strike etc. Labour force has been projected through the application of participation rates from the 1971 census to the 1976 population projections on the basis of age, sex and ethnic origin.
4. Native includes Indian, Eskimo and Metis. Metis population has been estimated at 5,000 for Northwest Territories.

Source: Department Indian and Northern Affairs

OCCUPATIONAL DISTRIBUTION BY ETHNIC GROUP (%)

NORTHWEST TERRITORIES 1976

Occupational	Indian	Eskimo	Other
Management	4.6	3.5	13.0
Professional	8.3	15.2	21.8
Clerical & Sales	10.7	13.0	27.4
Service	19.2	15.8	10.7
Farming, Fishing & Forestry	25.2	14.8	1.2
Mining	0.8	1.2	2.5
Processing & Fabricating	1.5	6.9	4.4
Maching & Construction	12.3	14.0	12.1
Transportation & Handling	3.4	6.7	4.4
Other	14.0	8.9	2.6

Source: Government of the Northwest Territories, Program and Policy Evaluation, (1977).

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- The Labour Force, Cat. No. 71-001, Monthly.

MINING INDUSTRY:

Background:

The discovery of mineral deposits in Yukon and Northwest Territories occurred during the 18 century. As early as 1871 Samuel Hearne was exploring for the rumoured copper mine in what now is known as the Coppermine River area northeast of Great Bear Lake. In 1789 Alexander Mackenzie located coal deposits on the Great Bear River and noted also the presence of petroleum seepages on the Mackenzie River. Nevertheless, the mineral discoveries of the Northwest Territories were not developed until the 1920s and 1930s.

Today, the minerals industry is the principal commercial economic activity in the north and there is little doubt that it will remain so for the foreseeable future. It is worth noting that a fundamental characteristic of the mining business in the north is its fluctuating output. The total production is concentrated in only a few operating mines which causes the territorial mining industry to reflect any significant change in the operation of one mine.

Value of Mineral Production:

The value of mineral production by sales in the Northwest Territories has been estimated at $274 927 000 for 1978, a record high. This compares to $18 142 in 1961 and $115 554 in 1971. In 1978, production came from eight mines which produced tungsten, zinc, gold, lead, silver, copper and cadmium.

The value of mineral products has grown steadily throughout the 1970s with minor exceptions. Zinc and lead are the largest contributors followed by gold, tungsten, silver, cadmium and copper.

Employment:

Employment in the mining industry is a major economic and social factor in the Northwest Territories. According to the Canada Employment and Immigration Commission's annual report, there were 1 752 persons employed in February 1978.

Of this total, 110 or 6 percent were Native people. In 1961, there were only 548 people employed in the producing mines. Of this total, 53 were Native people or 9.6 percent of the total. Generally, the mining industry has not provided employment for significant proportions of the Native population. There are indications that future mine development will try to train as many Natives as possible without recruiting most workers from southern regions.

Mining Potential:

The future for the mineral industry in the Northwest Territories looks bright. An estimated $50 million is being spent on mineral exploration this year. Of the 60 companies operating in the Territories, probably two-thirds are searching for uranium. Even after the Three Mile Island muclear incident in the United States, exploration activity for uranium has not slackened. A number of uranium prospects have been located in the Keewatin, in the Dismall Lakes area of the Coppermine, and in the northern part of the Great Bear Batholith. Higher gold prices have also given a boost to gold mining and exploration. Low grade ore deposits are being reassessed in the light of the higher prices. Later this year Cominco hopes to get a production decision on its remote Arvik lead-zinc mine in the central Arctic (Little Cornwallis Island). Total investment is likely to be around $150 million and the mine is expected to employ around 250 people. Cominco is hoping to train as many Native people as possible without recruiting a large number of workers from the south. Another potential mine site which probably will be exploited by the mid 1980s is the lead-zinc mine site in the Howard Pass area on the Yukon-Northwest Territories border. This development is largely dependent on resolving the problems of bringing power into the remote site and arranging transportation of the ore. High energy costs also plague another large mining development planned for the Northwest Territories-Yukon border -- Amax Northwest Mining's proposed MacMillan Pass tungsten mine. The MacTung ore body is entirely within the Yukon but all the mine's operation would be in the Northwest Territories.

Indicators are that the mining industry of the Northwest Territories has a substantial potential for economic growth. Its potential beyond 1979 can be illustrated by two projections. The first of these projections is made on the assumption that world demand for metals will remain high, making it feasible to develop mines where it was once uneconomical. Secondly, assuming world demand remains high for precious and base metals, we can expect record spending on mining exploration followed by services which will cater to mireral development. With improvements in the infrastructure it will be possible to explore and exploit more new discoveries. Thus, keeping favourable world conditions in mind and internal infrastructure improvements, it is quite possible that the mining industries in the Territories will expand fairly rapidly over the next decade.

Constraints to Development:

Production Costs:

The level of mineral output attained in the Territories has not been directly limited by the availability of the natural resources themselves. That is, the production of minerals has not in any way been carried to the point where further development has been prohibited because of the physical exhaustion or rate of depletion of the natural resources. The contention here is that the most obvious factor influencing the exploitation of minerals in the north is its remoteness. This remoteness can be translated into cost of production levels which have in turn restricted the level of resource development in the Territories.

1. Labour Costs: A simple comparison of weekly wages in the Territories indicates they are generally higher than the average weekly earnings of Canada as a whole, $344.99 and $285.15 respectively. It is difficult to establish the reasons for higher labour costs because they reflect many factors, such as the characteristics of the particular mines involved, the absence of a local pool of labour and the remoteness of the mining camps themselves. But what such attempts at estimating relative labour costs to northern mine operators suggest is that these direct labour outlays have probably not been as important as assumed and that their significance is overshadowed by higher indirect labour costs in the form of expenses associated with providing workers with such things as transportation allowances,

housing and recreation facilities. There have also been the costs associated with the unusually high labour turnover in northern operations. Generally, all these extra costs have made total net returns for firms operating in the north less than for those operating in the south.

2. Process Supplies Costs: The costs of process supplies in the Territories are on average much higher than in similar mines in the provinces. Part of this cost differential is undoubtedly attributable to higher transportation costs.

3. Fuel and Electricity Costs: Fuel and power are important inputs contributing to production costs. Fuel and electricity costs generally exceed those encountered by producers in the provinces.

4. Capital Costs: There are several reasons why larger amounts of capital are required in territorial mining operations than elsewhere in Canada. First of all pre-production outlays are generally higher. Secondly, the inventory problem requires operators to hold larger stocks of working capital. Third, larger investments in ancillary facilities are necessary.

Related issues associated with development:

1. A complete lack of roads makes it very difficult to exploit potential mines. Consequently, high-grade minesites are exploited first.

2. Conflicts with other land uses also restricts the development of certain potential minesites. For example, a land freeze in 1977 was instituted by the federal department of Indian and Northern Affairs in the Baker Lake area because it was felt that exploration activity was endangering the caribou herds.

Table 1

VALUE OF MINERAL PRODUCTION BY TYPE OF MINERAL NORTHWEST TERRITORIES, 1971-1978

	1971		1972		1973		1974		1975		1976		1977		1978	
MINERAL	$'000	%	$'000	%	$'000	%	$'000	%	$'000	%	$'000	%	$'000	%	$'000	%
Gold	10 898	9.6	17 713	15.0	24 263	15.3	28 651	13.4	28 754	15.7	24 390	13.0	29 462	13.5	44 545	16.2
Silver	4 475	3.9	6 779	5.7	13 692	8.6	17 670	8.2	8 883	4.9	14 343	7.6	20 414	9.4	24 192	8.8
Lead	22 630	19.8	27 838	23.6	32 262	20.3	34 933	16.3	37 254	20.5	26 440	14.1	40 087	18.4	56 884	20.7
Copper	728	0.6	577	0.5	1 106	0.7	841	0.4	527	0.3	640	0.3	510	.23	520	.19
Zinc	75 056	65.8	64 792	55.0	87 541	55.1	132 251	61.7	106 650	58.6	122 438	65.0	127 401	58.5	148 786	54.2
Cadmium	301	0.3	205	0.2	61	-	-	-	1	-	3	-	-	-	-	-
Bismuth	41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	114 129	100.0	117 904	100.0	158 925	100.0	214 346	100.0	182 069	100.0	188 254	100.0	217 874	100.0	274 927	100.0
Percentage Change from Previous Year			3.3		34.8		34.9		-15.1		3.4		15.7		26.2	

Source: Northern Non-Renewable Resources Branch, Indian Affairs and Northern Development

Northwest Territories Chamber of Mines, 1978 Annual Report

Statistics Canada, Cat. No. 26-201, 26-202, 1977-1978

Table 2

PRODUCING MINES IN THE NORTHWEST TERRITORIES - 1978

	Mine	Type of Operation	Location	Product	Annual Total of Ore Mined (tons)
1.	Pine Point Mines Ltd.	Open pit and underground	80 kilometers east of Hay River	zinc, lead	3 290 479
2.	Nanisivik Mines Ltd.	Underground	29 km northeast of Arctic Bay	zinc, lead	601 994
3.	Giant Yellowknife Mines Ltd.	Open pit and underground	2.4 km north of Yellowknife	gold, silver	396 657
4.	Cominco Ltd. (Con-Rycon-Vol) Mines	Underground	2.4 km south of Yellowknife	gold, silver	219 981
5.	Echo Bay Mines Ltd.	Underground	Port Radium	silver, copper	37 734
6.	Terra Mining and Exploration Ltd.	Underground	16 km south of Great Bear Lake	silver, copper, bismuth	28 306
7.	Northrim Mines Ltd.	Underground	9 km east of Terra	silver, copper, bismuth	4 139 operations were closed down in June 1978
8.	Canada Tungsten Mining		Tungsten	tungsten, copper	194 700

Source: Mines and Minerals Activities 1976, Indian Affairs and Northern Development

Northwest Territories Chamber of Mines, 1978 Annual Report

Table 3

VALUE OF PRODUCERS' SHIPMENTS OF MINERALS
NORTHWEST TERRITORIES AND CANADA, 1950-1978

Year	Value NWT	Value Canada	NWT Value as a % of Canada
1950	8 051	1 045 450	0.8
1952	8 945	1 285 342	0.7
1954	26 414	1 488 382	1.8
1956	22 158	2 084 906	1.1
1958	24 895	2 100 739	1.2
1960	27 135	2 492 510	1.1
1962	18 142	2 881 272	0.6
1964	18 081	3 365 207	0.5
1966	111 239	3 980 545	2.8
1968	115 636	4 722 059	2.4
1970	133 814	5 722 059	2.3
1971	115 554	5 962 692	1.9
1972	120 337	6 404 784	1.9
1973	165 489	8 364 742	2.0
1974	233 050	11 618 098	2.0
1975	206 349	5 241 151	3.5
1976	224 614	5 314 585 005	3.6
1977	217 874(E)	5 987 886(E)	3.6
1978	274 927(E)	5 519 569 000(E)	4.9

E - preliminary estimate of Mineral Production

Source: 1. Canada's Mineral Production, Catalogue 26-202 Annual Statistics Canada 77-1978 (Information Canada, Ottawa)

2. General Review of the Mineral Industries Catalogue 26-201 Annual 1950-70.

Table 4

MINERAL CLAIMS RECORDED BY MINING DISTRICT
NORTHWEST TERRITORIES - 1968/1978

Year	Mackenzie	Arctic and Hudson Bay	Nahanni	Total
1968	43 444	526	519	44 489
1969	10 589	8 031	463	19 083
1970	8 589	5 213	509	14 574
1971	5 188	1 371	146	6 705
1972	2 940	2 022	593	5 555
1973	7 158	4 836	3 309	15 303
1974	10 026	1 218	936	12 180
1975	10 370	5 315	5 364	21 049
1976	38 943	19 971	8 281	67 195
1977	43 472	23 945	8 455	75 872
1978	39 137	24 210	4 964	68 311

Source: Department of Indian Affairs and Northern Development
North of 60
Mines and Minerals Statistics (Monthly)

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OIL AND GAS INDUSTRY:

Background:

It was not until a private company discovered commercial quantities of petroleum near Fort Norman on the Mackenzie River that any official enthusiasm, or even interest developed in connection with the Northwest Territories. The first oil strike in the Territories was made on August 24, 1920, when the Northwest Company's Discovery well near Norman gushed at a depth of 783 feet. This was the first major mineral development to occur in the Territories and it was responsible for drawing national attention to the economic prospects of the Mackenzie District.

From the time of the Norman Wells discovery to the 1960s no new commercially significant oil reserves have been found. Between 1950-60 over 100 wells were drilled in the proven field at Norman -- the only producers were four development wells. Several gas wells were also brought in but they were either capped or abandoned because of the absence of transportation facilities for gas. In spite of these negative results the search for petroleum in the Territories continues.

Present Status of Production:

Despite a substantial exploration investment in the Territories over a long period of time by the petroleum industry, production is limited to one oilfield and one gas field.

Recent reports indicate there is much more oil in place at Norman Wells than was originally expected. The field is thought to contain between 500-600 million barrels of oil. Imperial Oil at Norman Wells estimates that between 200-300 million barrels can be recovered by using advanced recovery techniques. Reserves were originally estimated at 50 million barrels and production has been running at 3 000 barrels a day from the wells on the east side of the Mackenzie River and on two islands in the river. Production from each of the existing wells ranges from a few barrels a day to 60 or 70 barrels a day. Since 1933 the field has produced some 22 million barrels of oil.

While Norman Wells has been a steady producer for half a century it is hopeful increased reserves might make construction of a pipeline feasible.

Gas production from the Pointed Mountain Field from January to June 1978 averages 56 525 mcf per day. Total production from January to June 1978 was 10 231 032 mcf. The gas produced at Pointed Mountain is transported by Westcoast Transmission Co. Ltd. which has a number of lateral lines gathering gas from producing areas in British Columbia, western Alberta and the Pointed Mountain field in the Northwest Territories.

Exploration and Production:

The number of exploratory wells completed in Canada in 1978 increased by 9.7 percent, a hike of 272 to 3 058 wells. The Northwest Territories recorded a major decrease in the number of exploratory completions, from 18 in 1977 to 14 in 1978, a 22.2 percent drop. Development drilling last year in Canada achieved a 17.5 percent increase in the number of wells compared to a 6.4 percent hike registered in 1977. The Territories recorded a 50 percent decline in development metreage from 8 in 1977 to 4 in 1978.

North of 60, Oilweek is forecasting that approximately 30 wells will be drilled this year, 12 more than in 1978. This compares with 5 800 predicted for Alberta, 1 500 for Saskatchewan, and 450 for British Columbia.

Exploration costs in Western Canada including programs north of 60 and in the Beaufort Sea, have been set at $1 542.5 million this year against an estimated $1 305.5 million in 1978. This includes geological and geophysical work, together with wildcat drilling. The level of outlays in the Northwest Territories including the Arctic Islands and Beaufort Sea is expected to increase by $60 million to $400 million despite lack of activities in the Mackenzie Delta.

Development drilling outlays will remain nearly the same for the Territories and Arctic at about $10 million. This compares to about $63 million which will be spent in Saskatchewan.

Capital investment in field production facilities, including gathering systems and enhanced recovery projects will climb to $9 million from $8 million in 1978. Cost of operating field production facilities is expected to increase from $6 million in 1978 to $7 million in 1979.

Royalty payments, both Crown and freehold, along with other charges such as mineral taxes is expected to increase by $1 million from $5 million in 1978 to $6 million in 1979.

Polar Gas Project:

The Polar Gas Project, which proposes construction of a 120-cm island-hopping pipeline to deliver natural gas to southern markets from the Arctic islands, came closer to realization in 1979 with the discovery of a substantial new gas reserves in that area. Panarctic for example, made its most significant discovery after three years of exploration in the Arctic. If further drilling in related structures are as significant it would push Arctic Island reserves near the 850 billion m^3 mark by 1982. This projected production capability is well beyond the threshhold levels needed for the Polar Gas Project, construction of which could begin by 1984 at a cost of $7 billion. At present the problem is not so much in constructing the line, but rather in establishing gas reserves large enough to sustain the economic operation of the line long enough to justify the capital expenditures. If sufficient reserves cannot be found to justify this pipeline, other transportation modes such as ice-strengthened liquified natural gas tankers may be considered as an alternative.

Constraints to Development:

1. Exploring north of 60, even in an age of high technology takes a strong element of faith. The large lag times between discovery and exploitation and the equally large price tag attached to each wildcat are enough to dissuade many explorers. Generally, there is no lack of potential in the north, however, development is governed by the laws of economics.

2. To date, the cash flow picture north of 60 has been almost entirely negative. Expenditures last year totalled $354 million of which $340 million was spent on exploration while gross revenues of $35.1 million did little to balance the ledger.

3. Exploration in the far northern mainland has never recovered from the cancellation of the Mackenzie pipeline. Esso, however is trying to keep hope from completely fading by complementing its imaginative island building program in the shallow waters of the Beaufort Sea with land work in the Mackenzie Delta.

4. The immediate prospects far sizeable additions to Canada's gas reserves continues to lie in the more accessible regions of Western Canada. Land regulations and lack of pipelines are all having the effect of putting explorations in the far north in the holding position.

5. Unsettled native land claims.

6. Potential land use conflicts with other resources.

Table 1

PRODUCER'S SHIPMENT OF CRUDE OIL
N.W.T. AND CANADA, 1950-78

Year	Volume (Barrels)	Value ($'000)	Canada Vol (Barrels)	NWT Volume as a % of Canada
1950	186 729	353	29 043 788	0.6
1952	314 217	379	61 237 322	0.5
1954	369 887	345	96 080 345	0.4
1956	449 409	763	171 981 413	0.3
1958	457 086	698	165 498 196	0.3
1960	468 545	641	189 534 221	0.2
1961	516 979	730	220 848 080	0.2
1962	572 004	755	244 115 152	0.2
1963	631 229	634	257 661 777	0.2
1964	608 557	455	275 417 043	0.2
1965	644 998	615	292 332 915	0.2
1966	749 654	862	320 549 259	0.2
1967	677 937	871	351 287 792	0.2
1968	751 592	907	379 491 577	0.2
1969	801 341	967	410 989 652	0.2
1970	846 003	1 142	461 180 059	0.2
1971	944 083	1 208	492 739 049	0.2
1972	890 067	1 059	561 976 934	0.16
1973	962 733	2 239	655 853 110	0.15
1974	954 000	3 167	614 777 000	0.16
1975	1 006 000	4 537	522 063 000	0.19
1976	984 000	8 364	489 610 000	0.2
1977[P]	866 000	N/A	482 021	0.18
1978[P]	917 000	N/A	479 445	0.19

P - preliminary

Source: 1950-1976 data: General Review of the Minerals Industries 1950-76 issues, Statistics Canada, Cat. No. 26-201, Annual (Information Canada, Ottawa).

1976-78 data: Canada's Mineral Production Preliminary Estimate 1972, Statistics Canada, Cat. No. 26-202, Annual.

1977-1978 data: Statistics Canada: Crude Petroleum and Natural Gas Production 26-006.

Table 2

PRODUCER'S SHIPMENTS OF NATURAL GAS
N.W.T. AND CANADA, 1950-1978

Year	NWT Volume (mcf)	Value ($'000)	Canada Volume
1950	33 335	13	67 822 230
1952	24 847	10	88 686 465
1954	29 085	10	120 735 214
1956	21 210	7	169 152 586
1958	24 100	8	337 803 726
1960	39 785	12	522 972 327
1961	41 678	17	655 737 644
1962	56 707	24	946 702 727
1963	51 478	21	1 117 425 217
1964	34 341	14	1 134 210 700
1965	43 068	18	1 236 798 360
1966	46 238	20	1 341 831 241
1967	40 589	17	1 471 735 152
1968	42 602	18	1 696 679 650
1969	43 723	18	1 977 932 414
1970	81 939	35	2 277 108 791
1971	297 588	117	2 499 023 600
1972	11 794 631	1 372	2 913 537 215
1973	36 873 000	4 323	2 119 460 755
1974	31 600 000	5 537	3 045 506 000
1975	30 944 000	19 742	3 089 530 000
1976	32 700 000	19 578	3 067 367 000
1977[P]	27 138 000	N/A	3 617 307
1978[P]	20 989 000	N/A	3 514 614

P - preliminary

Source: Northwest Territories Statistical Abstract 1973
Indian and Northern Affairs, North of 60

1977-1978 data Statistics Canada: Crude Petroleum and Natural Gas Production 26-006

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Crude Petroleum and Natural Gas Production, Cat. No. 26-006;
Canada Year Book, Cat. No. CS11-202/1978.

FOREST INDUSTRY

Background:

The forest areas in the Northwest Territories have always supplied the native population with building materials and fuelwood. It was not until mining development, however, that a commercial market for forest products appeared. In the 1930s, the mining market gave local operators support for this industry. Consequently, small sawmills were set up at suitable locations having access to both river transport and to good stands of timber.

It was not until after World War II that studies began to determine the characteristics of the forest resources themselves. The studies confirmed the existence of at least two major areas possessing significant timber reserves: one along the Slave River between Fort Smith and Great Slave Lake and the other in the lower Liard River Valley between Fort Nelson and Fort Simpson. The potential output of these areas was seen as more than sufficient to meet the territorial market.

Forest Cover:

Approximately 213 717 square miles or 16.5 percent of the total land area of 1 304 903 square miles of the Northwest Territories are estimated to be forest land. Of this total, only about 44 131 square miles are considered productive or of any commercial use.

West of the Mackenzie River, the Mackenzie Mountains form a wide band that extends to the Yukon border and beyond. The vegetation of this mountainous region varies with altitude, latitude and shelter. The lower slopes are forested with spruce and poplar, while alpine flora is found above the tree line. The southwestern section of the Mackenzie Valley is mainly forested. Jack pine is predominant on sandy soils while spruce forms dense stands on well-drained land. Black spruce and larch dominate the poorly drained muskeg terrain. North and east of Great Slave the density of trees decreases and they become stunted in growth. Generally, the Upper Mackenzie section, a triangle from Norman Wells down to the Liard and Peace Rivers, consisting of valley floodplains and uplands, contains the best timber producing land in the northwest.

Average growth rate is slow, requiring from 100 to 150 years to reach maturity. On some sites, growth is good for stands of white spruce. Trees of commercial size (20" DBH) are found in limited areas only. Estimates place total merchantable timber at 14 billion cubic feet. Total allowable cut has not yet been defined.

Commercial Forest Use

To date, little commercial use has been made of northern forest resources. In 1967, there were 10 small sawmills and logging operations, four private, one cooperative and five government operated, using portable or semi-portable installations. They have never emerged as more than marginal operations and have had small economic impact.

Anticipated production in the 1978-79 season is expected to be 20 924 cunits.* Actual cut in the 1977-78 season was 10 405 cunits in the form of sawn logs, fuelwood and round timber.

In 1971, there was a total labour force of 95 men involved with forestry. Of this total, 45 were Indian, 5 were Eskimo and 45 were classified as other.

Although some authorities claim existing timber stands could support a viable pulp and paper industry, there is some question of whether it could be competitive with southern operations. Even these existing operations are in trouble occasionally due to a variety of market factors. Nevertheless, many authorities feel it is possible to develop the forest industry on a scale to supply the local market and, possibly, to develop products especially adapted to use in the north.

Constraints to Development

1. Due to lack of access, it is unlikely that the territories' forests will be used extensively in the foreseeable future.

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* Cunits is 100 cubic feet.

2. A small and widely dispersed market far from large markets makes large scale commercial forestry impossible.

3. The forestry industry which does exist is operating at lower than potential because of the above two factors in addition to lack of competent management in many cases.

4. At present the existing lumber and plywood market in the Northwest Territories is being met from the south in the form of pre-cut and modular houses. This makes it difficult for northern entrepreneurs to penetrate the potential market.

5. Lack of capital resources has prevented operators of small mills from either air drying on kiln drying their lumber, since they must market products quickly to maintain cash flow to pay for logging. Consequently, this works against them further since they cannot meet grade standards.

Related Issues:

1. There is a lack of sufficient information on the forest resource to allow for long-range planning of forest resource use. For example, the only record of timber cutting is the permits issued.

2. Little is known about the regenerative potential of forests in the north. In view of this and the fact that it takes over 100 years to grow a commercial tree, northern forests will have to be carefully managed.

3. Little is known of the environmental impact of harvesting forests in the far north. Because the environment is so sensitive it is quite possible that even small scale forestry could have detrimental effects.

Potential for Development:

There is no doubt that a demand exists for territorial lumber resources. Consequently, it should be possible to integrate the northern forest resource into the construction industry by planning in advance the use of regional materials

in building programs and thus provide a basis for local development. It might be more expensive initially, but when one considers the number of jobs that might be created, the positive factors might offset the somewhat high initial costs. In order to develop this potential, it may be feasible to establish a large central lumber mill at one location where logs or rough sawn lumber could be transported for finishing. At this mill, a kiln drying facility could be established for all those wishing to use it.

TABLE 1

AREA CLASSIFICATION, NORTHWEST TERRITORIES AND CANADA
1973

CLASSIFICATION	N.W.T.	CANADA
	'000 Acres	
FOREST LAND		
Primary	5 875	388 532
Secondary	-	49 048
Tertiary	118 669	330 068
Total	124 544	767 648
Federal Reserves	10 650	34 985
Provincial Reserves	-	3 250
Forest Land - Total -	135 194	805 883
Wildland	675 929	1 240 921
Agriculture	1 727	166 411
Other, Urban, etc.	-	65 608
LAND - TOTAL	812 850	2 278 823
WATER	32 938	200 170
AREA - TOTAL	845 788	2 478 993

Source: Statistical Abstract 1977; Northwest Territories; Department of Indian Affairs and Northern Devleopment.

TABLE 2

FOREST PRODUCTION IN NORTHWEST TERRITORIES
1960 - 1979

YEAR ENDING	SAW LOGS		FUELWOOD		ROUND TIMBER	TOTAL
March 31	'000'bd.ft.	C units[1]	Cords	C units[1]	C units[1]	C units[1]
1960-61	1 049	2 100	1 410	1 200	2 920	6 220
1961-62	1 909	3 820	2 111	1 790	2 680	8 290
1962-63	2 060	4 120	3 518	2 990	1 720	8 830
1963-64	2 272	4 540	3 944	3 350	2 010	9 900
1964-65	1 358	2 720	2 500	2 120	1 130	5 970
1965-66	2 523	5 050	8 950	7 610	430	13 090
1966-67	3 328	6 650	8 339	7 090	1 210	14 950
1967-68	3 626	7 250	7 595	6 460	420	14 130
1968-69	2 736	5 470	1 038	880	130	6 480
1969-70	5 090	10 180	1 189	1 010	590	11 780
1970-71	3 873	7 750	1 427	1 210	860	9 820
1971-72	1 405	2 810	2 696	2 290	1 640	6 740
1972-73	2 814	5 630	3 810	3 050	2 750	11 430
1973-74	2 328	4 660	1 858	1 680	2 570	8 910
1974-75	6 205	12 410	1 274	1 019	1 611	15 040
1975-76	7 195	14 390	2 200	1 760	1 300	17 450
1976-77	5 870	11 210	3 222	2 562	592	14 364
1977-78	3 610	7 220	3 004	2 403	782	10 405
1978-79[E]	8 975	17 950	2 957	2 366	608	20 924

[1] C unit equals 100 cubic feet

E equals estimate

Source: Northwest Territories Lands and Forest Service, Regional Administration, Department of Indian and Northern Affairs

TABLE 3

VALUE OF FOREST PRODUCTION
NORTHWEST TERRITORIES, 1960 - 1977

YEAR	LUMBER	CORDWOOD	ROUND TIMBER	CHRISTMAS TREES	TOTAL
1960-61	57 695	11 280	$ 146 000	-	214 975
1961-62	104 995	16 888	134 000	-	255 883
1962-63	113 300	28 144	86 000	-	227 444
1963-64	136 320	47 328	100 300	-	283 948
1964-65	81 480	30 000	56 500	-	167 980
1965-66	176 610	143 200	21 400	-	341 210
1966-67	232 960	133 424	60 600	100	427 084
1967-68	290 080	151 900	21 100	-	463 080
1968-69	218 880	20 760	6 400	-	246 040
1969-70	407 200	23 780	29 600	-	460 580
1970-71	348 570	28 540	42 900	500	420 510
1971-72	126 450	53 920	82 000	-	262 370
1972-73	337 680	92 250	68 880	-	498 810
1973-74	349 200	46 450	79 800	-	475 450
1974-75	1 116 900	45 625	36 120	-	1 198 645
1975-76	1 439 000	66 000	169 500	-	1 674 500
1976-77	980 875	160 100	144 115	-	1 285 090

Source: Statistical Abstract 1977; Northwest Territories; Department of Indian Affairs and Northern Development

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FISHING INDUSTRY:

Background:

The major commercial fishing industry in the Northwest Territories is concentrated in Great Slave Lake. In 1958, Great Slave Lake was, by value of output, the most important inland fishing region in the Canadian Northland. Operations first began in 1945 when 3.3 million pounds of fish, mostly white fish, were caught. By 1948, the fish catch reached nearly 8 million pounds, valued at $1.5 million.

Today, the water resources of the Northwest Territories provide: 1) many opportunities for sport fishing; 2) a fishery of major significance to the native people; and, 3) a commercial fishery for whitefish, trout, pickerel, pike, arctic char and other species.

Commercial fishing is also centered on Cambridge Bay (Arctic Char) and a number of locations in the Keewatin and Baffin regions where char, whitefish and trout are harvested. Sports fishing is centered in the Fort Smith region and a number of remote areas scattered throughout the north.

Commercial Fishing:

Great Slave Lake: In 1978, the total production for all species in all areas of Great Slave Lake was approximately 3 400 000 pounds; up 100 000 pounds from 1977. Production of whitefish and trout was approximately 2 670 000 pounds in 1978, down 150 000 pounds from 1977. Total production was highest in 1978 with all species well above the last seven years average.

A total of 62 fishermen participated in the 1977-78 winter fishery while 172 participated in the summer fishery.

Arctic Char Fishery: The Arctic Char fisheries are small in comparison to the fishing operation which takes place on Great Slave Lake. Nevertheless, its economic importance is increasing yearly. Initially, arctic char fishing was operated by the Eskimos, today it is encouraged by the federal government in order to help stabilize the local economy of the native people.

The commercial fishery for arctic char in the Territories is located in four regions: Frobisher Bay, the Keewatin Region, Cambridge Bay and Pelly Bay. Prior to 1977, arctic char caught in the Keewatin Region was shipped to the Rankin Inlet smoking and canning plant. Since 1977, most of the arctic char is now shipped to the Freshwater Fish Marketing Corp. in Winnipeg.

A proportion of the arctic char produced for commercial sale is sold locally to the tourist market. The balance of production is shipped south for commercial sales. In recent years arctic char sales by the Freshwater Marketing Corp. have increased substantially. Unfortunately, however, the Canadian market has not been adequate to absorb the volume of production. Consequently, new markets had to be found. In 1978, a new market was developed and Sweden became the largest consumer of arctic char. During 1978, Sweden purchased 130 000 pounds of arctic char while Canada and the United States each purchased 93 000 and 4 000 pounds respectively.

Non-Resident Fishery:

Sports fishing is a very important recreational activity in the Northwest Territories. In 1977, there were 45 sport fishing lodges. Of particular importance is the Fort Smith Region which, in 1971, could accommodate 530 fishermen which at that time represented 74.8 percent of the total capacity of the lodges.

Most of the tourists visiting the fishing lodges have over the years come from the United States. In 1971, the Americans accounted for 86 percent and the Canadians 13 percent of the tourists visiting lodges and outfitters.

Generally, sport fishing can yield greater returns to northern residents than commercial or subsistence fishing with less stress on the resource. Although recreational fisheries may be more profitable than commercial fishing, many of the present operations provide only minimal returns to residents because they are owned and operated by outside entrepreneurs. Recent studies report that more than 50 percent of sport fishing operators are non-residents of the Territories. Consequently, native people must play a larger overall role in every phase of sport fisheries development if they are to achieve greater benefits.

Native Fishing:

Historically, the native population of the Territories relied on fish resources for part of their food source. Today there are still a substantial number of natives who continue to fish for economic and cultural value.

Constraints to Development:

1. Unique freshwater arctic ecosystems limit the development of fish stocks. Although populations may be large, the rate at which fish can be harvested is limited by slow growth and reproductive rates.

2. Fisheries must be established so as to minimize air transport costs in order to make the industry more economic.

3. Generally, fishing in the Northwest Territories can be viewed as an industry which provides a large number of residents with income. However, this income, in most cases, is not adequate for year-round family maintenance.

Outlook for Commercial Fishing:

The outlook for this industry is not overly optimistic. Employment in the primary fishing industry has fallen substantially since the 1950s and 1960s. Employment in 1963 was estimated to be 453 some 80 less than in 1957-1958. By 1976, the number of persons employed in all primary fishing operations had declined to 118. In the long run there would have to be major market changes, such as an increase in the price of fish, in order to improve the fishing industry in the territories. Another aspect of the commercial fishing industry which would increase total employment is the development of processing plants to serve northern markets. This is exemplified by a proposal for a fish cannery at Hay River which would employ about 60 people.

TABLE 1

QUANTITY AND VALUE OF FISH LANDED AND EMPLOYMENT, COMMERCIAL FISHERIES, NORTHWEST TERRITORIES, 1961 - 1976

YEAR	QUANTITY	LANDED VALUE	VALUE PER POUND	EMPLOYMENT
	'000 lb.	$'000	Cents	Number
1961	5 676	675	11.9	336
1962	6 544	859	13.1	476
1963	6 347	796	12.5	453
1964	5 960	808	13.6	438
1965	5 603	977	17.4	412
1966	4 277	765	17.9	450
1967	4 269	817	19.1	361
1968	4 244	759	17.9	352
1969	4 607	1 013	22.0	326
1970	4 613	1 087	23.6	235
1971	3 984	960	24.1	198
1972	3 531	839	23.8	-
1973	3 241	809	25.0	114
1974	2 938	738	25.1	112
1975	2 568	677	26.3	136
1976	2 846	871	30.6	118

Source: Northwest Territories Statistical Abstract 1977, Department of Indian and Northern Affairs

Fisheries Statistics Canada 1976, Cat. No. 24-201

Fisheries Statistics, Ontario, Prairie Provinces and N.W.T., 1976, Cat. No. 24-207

TABLE 2

QUANTITY OF FISH LANDED, BY SPECIES, COMMERCIAL FISHERIES NORTHWEST TERRITORIES, 1961 - 1976

Year	Pickerel	Pike	Trout	Whitefish	Other	Total
			'000 lb.			
1961	56	287	1 099	4 023	211	5 676
1962	31	270	1 339	4 628	276	6 544
1963	97	305	870	4 717	358	6 347
1964	42	176	972	4 467	303	5 960
1965	45	237	1 004	4 011	306	5 603
1966	189	330	735	2 807	216	4 277
1967	145	470	788	2 435	429	4 267
1968	89	356	406	3 208	185	4 244
1969	79	293	475	3 453	307	4 607
1970	99	206	629	3 515	164	4 613
1971	157	191	360	2 868	408	3 984
1972	161	280	323	2 510	257	3 531
1973	101	260	252	2 406	222	3 241
1974	81	226	144	2 242	245	2 938
1975	103	235	213	1 723	294	2 568
1976	70	230	180	2 090	276	2 846

Source: Northwest Territories Statistical Abstract 1977, Department of Indian and Northern Affairs

Fisheries Statistics Canada 1976, Cat. No. 24-201

Fisheries Statistics, Ontario, Prairie Provinces and N.W.T., 1976, Cat. No. 24-207

TABLE 3

ARCTIC CHAR SALES BY
FRESHWATER FISH MARKETING CORPORATION

MAY 1 - APRIL 30

1973/74 - 1978/79

(NEAREST 1 000 LBS., NEAREST $1 000)

YEAR	LBS. (DRESSED)	$/LB.	$
1973/74	51	1.62	82
1974/75	72	1.94	140
1975/76	81	1.94	157
1976/77	103	2.38	246
1977/78	85	2.38	204
1978/79	227	1.94	440

Source: Report by Goldenberg and Levitt on the Arctic Char Fisheries for the Department of Economic Development and Tourism, Government of the N.W.T., 1979.

TABLE 4

ARCTIC CHAR SALES
BY COUNTRY OF DESTINATION

MAY 1, 1978 - APRIL 30, 1979

(NEAREST 1 000 LBS.)

	LBS. SOLD (DRESSED)
Canada	
Alberta	33
Ontario	40
Other	20
Total Canada	93
U.S.A.	4
Sweden	130
	227

Source: Report by Goldenberg and Levitt on the Arctic Char Fisheries for the Department of Economic Development and Tourism, Government of the N.W.T., 1979.

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HUNTING AND TRAPPING

Historical Development of the Fur Industry:

The northern fur industry was first established in the arctic regions by the Hudson's Bay Company formed in 1670. This company established its first trading posts in the eastern arctic at the mouths of the rivers emptying into Hudson and James Bays. To prevent the occupation of its inland "furshed", by the French, the Hudson's Bay Company moved inland from the west coast of Hudson Bay. In this way a series of trading posts were established of what was to become the Northwest Territories. The western part of what is now the Northwest Territories eventually became the point of confrontation between the Hudson's Bay Company and North-West Company. In 1821, the struggle ended with the amalgamation of the two companies creating a northern monopoly. With this amalgamation the newly formed organization made the north the leading fur region in Canada.

Present Status of Hunting and Trapping:

In the Northwest Territories, trapping and hunting are a major source of cash income for only a few, mainly native people. It combines well with their other traditional source of revenue - fishing. But, hunting and trapping is being seen increasingly as a low income relative to the amount of labour involved. In addition, fur prices have tended to fluctuate greatly. The result has been a decline in the number of hunters and trappers and pelts sold from year to year. Total pelts produced a revenue of $3.8 million in 1977-78, down from a peak of $4.3 million in 1976-77 season.

Over the years the value of pelts has not risen relative to price increases in other goods. In 1942-43, the value of pelts was $3.5 million, significantly higher than the $2.7 million average between 1972 and 1978. The gross output per trapper in 1978 was $1 044.00, slightly down from $1 055.00 in the 1976-77 season and significantly higher than the $800.00 average during the 1975-76 season.

During the 1977-78 season only 1 325 or 35 percent out of a total of 3 679 trappers made over $600.00 annually through trapping. In addition, only 35 trappers made over $8 000.00 annually. The general uncertaintees of the fur yield in an environment as delicate as the Northwest Territories' and the variability of their prices make trapping and hunting a risky form of livelihood at best. It may be expected then, that the number of traditional trappers and hunters will continue to decline with less and less reliance on trapping and hunting to supplement their income.

Sport Hunting:

Potential economic returns from sport hunting appear to be high, since such hunters are willing to spend at least twice as much as an average territorial tourist. In the Mackenzie Mountains where sports hunting is allowed, average expenditures per hunter exceeds $1 000.00 per week. Even though gross returns from sports hunting are high, big game outfitting will only benefit the native population if they are more actively involved in all phases of the activity. Presently, most of the outfitters are owned by residents of Alberta and British Columbia.

In terms of revenue generated, only about 25 percent of gross revenue from lodges and outfitters is spent on purchases of goods and services within the Territories. In addition, an estimated 50 percent of all lodges and outfitters employees are non-residents of the Territories.

Commercial Hunting:

There appears to be potential for some expansion of commercial hunting as fewer animals appear to be taken each year by subsistence hunters. In 1975, territorial government surveys indicated that the production cost of commercial caribou harvested was only about $0.11 per pound which is substantially lower than beef production. In addition, to providing income for individual hunters, the harvesting and sale of country food is generally more beneficial than the sale of imported meat because it provides more employment and more money is retained within local economies.

Constraints to Development:

1. Fur Production:

The high degree of instability in the physical output of raw furs in the north is reflected in the violent fluctuations in the gross value of this output measured in money terms. The price instability adds to these fluctuations. Because of this trapping and hunting is a highly uncertain source of money income for those engaged in it.

2. Meat Production:

With increased commercial harvests, trade in meat may occur between settlements. The major trade obstacles are high air transport costs, combined with infrequent service. Additional costs would also be incurred in large scale trade because meat may need to be cut, wrapped and inspected according to government standards.

TABLE 1

REGION	TOTAL NO. OF TRAPPERS	NO. OF TRAPPERS OVER $400	TOTAL FUR DOLLARS	$ 400- $1 000	$1 000- $2 000	$2 000- $4 000	$4 000- $8 000	$8 000 & OVER
SUMMARY 1975-1976								
Keewatin Region	465	203	$ 365 728.11	99	69	37	8	-
Inuvik Region	442	384	$ 763 107.32	170	107	77	18	11
Baffin Region	1 048	512	$ 728 950.32	270	159	69	14	-
Ft. Smith Region	1 460	568	$ 914 516.10	302	159	80	21	6
TOTALS	3 415	1 677	$2 722 301.85	841	494	263	61	17
SUMMARY 1976-1977								
Keewatin Region	451	203	$ 339 950.90	102	57	28	15	1
Inuvik Region	808	483	$1 017 537.40	182	136	107	42	16
Baffin Region	1 207	550	$ 880 433.24	267	165	95	23	0
Ft. Smith Region	1 623	769	$1 622 143.54	319	227	144	57	22
TOTALS	4 089	2 005	$3 860 065.08	870	585	374	137	39

Source: Department of Natural and Cultural Affairs, Government of the Northwest Territories.

TABLE 2

REGION	TOTAL NO. OF TRAPPERS	NO. OF TRAPPERS OVER $600	TOTAL FUR DOLLARS	$ 600-$1 000	$1 000-$2 000	$2 000-$4 000	$4 000-$8 000	$8 000 & OVER
SUMMARY 1977-1978								
Keewatin Region	423	146	$ 488 299.82	43	52	39	10	2
Inuvik Region	838	429	$1 092 902.65	116	145	103	51	14
Baffin Region	921	202	$ 494 960.93	99	84	16	3	-
Ft. Smith Region	1 497	548	$1 435 332.14	182	190	112	45	19
TOTALS	3 679	1 325	$3 411 495.54	440	471	270	109	35

Source: Department of Natural and Cultural Affairs, Government of the Northwest Territories.

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AGRICULTURE:

Background:

During the early days of the Northwest Territories, agricultural activities were more predominant than at present. One of the major contributing factors to this was the lack of transportation facilities which made it difficult and costly to import supplies from the outside. What facilities did exist, such as the river systems, were slow and operated only a few months out of the year. Perishable commodities could seldom be imported at any price under these conditions. Consequently, fresh vegetables and fruit had to either be grown locally or done without.

Small-scale, labour intensive agriculture began with the early traders and missionaries. According to L.A. Hunt, the early missionaries to the territories came from countries that were essentially agrarian, thus, they were not content to exist strictly on fresh moose, caribou and fish. As schools and hospitals expanded under the religious institutions so did the need for fresh vegetables. Consequently, missions be it Anglican or Roman Catholic from Fort Smith to Fort Good Hope cleared land for production.

It was at Fort Simpson that farming really got off on a good start. A Dominion Experimental Substation of the Department of Agriculture demonstrated that, with the exception of fruit trees, practically anything in cereals, small fruits and vegetables could be grown successfully at Fort Simpson. In other areas of the territories, even as far north as Inuvik, crops could be successfully grown. To illustrate this, it has been found that cabbages, broccoli, cauliflower, head lettuce, kale, leaf lettuce, beets, summer turnips, swiss chard, carrots, peas, potatoes, strawberries, rutabagas and many flowers including some perennials have been grown successfully.

Present Situation:

Present social, political and economic conditions in the Northwest Territories are not condusive to the development of commercial agriculture. This is due to unsettled land claims, the 1975 land freeze, the high costs

of northern agriculture which is due to the high cost of imported fertilizers, equipment, clearing and to the high loss of crops due to crop failures. In addition, in 1970, the Experimental farm at Fort Simpson was closed due to continuing low agricultural activity in the territories. Services, however, remain available through the Beaverlodge Research Station in Alberta.

Agricultural activity in the Northwest Territories is not expanding at present nor has it expanded in recent years. In 1976, there were nine farms in the territories totalling 598 acres with an additional 237 classified as improved acres. Other agricultural operations include a hay operation servicing Fort Smith horse owners; market gardens around Hay River; and a potato garden at Fort Providence. Two cattle operations at Mills Lake have been sporadically active. Generally, agriculture is a non-existent sector in the north as it is known in southern Canada.

Agricultural Potential of certain Areas of the Northwest Territories:

In 1975, the Saskatchewan Institute of Pedology was approached to do a study of agricultural potential in the Northwest Territories by the Soil Research Institute of Ottawa and the Department of Indian and Northern Affairs. The final report produced deals with four specific areas: the Slave River Lowlands, the Upper Mackenzie area, the Liard and Mackenzie River areas and the Hay River Valley area. Land outside these areas was considered unsuitable for large scale agricultural development except for micro pockets which could support subsistence farms and market gardens.

Slave River Lowlands:

The Slave River Lowland is bordered on the south by the Northwest Territories -- Alberta border, on the north by Great Slave Lake and on the east and west by the Taltson and Little Buffalo Rivers. This area has the largest proportion of improvable soils of all areas surveyed; almost 90 percent is class 5 or better. There is approximately 100 000 hectares of well drained soils in blocks of suitable size for growing grain or forage. Furthermore, there is probably 100 000 hectares of poorly drained soils that have

native forage yields of from 1 000 - 3 000 Kg/ha in their present state and 250 000 hectares of land that could be utilized for hay or pasture by clearing or draining and seeding to forages.

Livestock Potential:

A large livestock industry is possible given forage production capability however, lack of access to the better haylands is also a problem. Some of the more productive areas for forages are more than 50 kilometers north of Fort Smith and much of it is located on the east side of the Slave River. Thus, when beef prices are down, long expensive truck hauls for hay would be uneconomical.

Insects, primarily blackflies and mosquitos, if present in excessive numbers, could severely affect the rate of gain of livestock on summer pasturing from June to mid August. Predators such as wolves and bears would also be a constraint in any livestock operation, particularly during summer ranging.

In developing any major livestock operation in the area, consideration will have to be given to potential land use conflicts. Because of the presence of a number of bison herds in the surrounding area, it would be difficult to restrain them with fences. Consequently, the intermingling of the bison and cattle would increase the incidence of diseases such as anthrax, brucellosis and tuberculosis among the cattle.

Overview:

The problems regarding agricultural development in the Slave Lowland are not so much associated with the soil or climate, but are related primarily to economic or social aspects and other competing land uses. Potentially viable crops include oats, barley, market gardens, forage crops and areas for grazing. It should be noted that the area is variable and that some crops may grow better than others. If agriculture is to be developed, it would be advantageous if the bison herd could be restricted to an area and not allowed to roam the entire lowlands. Generally, many factors will determine or retard agricultural development in this area.

Upper Mackenzie Area:

The Upper Mackenzie survey area is located southwest of Great Slave Lake from Hay River to Kakisa Lake, north along the Yellowknife Highway and west along the Mackenzie River to Fort Simpson.

There are extensive agricultural tracts in the area. Class 3 and 4 soils make up 45 percent of the surveyed area -- 671 000 hectares. A further 342 000 hectares are class 5, suitable for seeding to forage.

There is very little potential south of the Mackenzie River where the ground is to wet, stoney or coarse. The area with the most potential is north of the river between Mills Lake and Great Slave Lake. Most of this area has been burned recently, thus, clearing costs would be substantially less than well-treed areas. Livestock production would be suitable in the Fort Providence area because the numerous open grass and sedge meadows could be utilized for pasture and hay. To make any agricultural operation feasible in this area, it would make sense to locate as many farms as near as possible to the Yellowknife Highway.

Potential exists for future land use conflicts in the Fort Providence area where a bison herd has been established northwest of Great Slave Lake. Furthermore, the Mills Lake area is an important waterfowl nesting ground and resting place for migratory birds.

Overview:

The Upper Mackenzie area suffers from many similar limitations affecting the Slave Lowlands. Nevertheless, the Providence area is closer to both southern shipping points and to the local market at Yellowknife. Secondly, unlike the Bison of the Wood Buffalo National Park who range throughout the Slave Lowlands carrying disease, the bison of the Mackenzie Bison Sanctuary herd are not diseased and consequently would not be as detrimental to any cattle operation.

Hay River Valley:

This area includes the Hay River floodplains plus surrounding uplands from the Alberta border to Great Slave Lake. The climate throughout this area is not overly severe,

however, agricultural development is limited by the soils and drainage. Only about 10 percent of the valley or 24 000 hectares are suitable for cereals, rapeseed and market garden crops. Wheat production is not recommended due to climatic limitations.

Some of the best land in this area is located on the floodplain and terraces along the river valley, often in patches of 50-150 hectares, with the largest concentration lying 10-25 kilometers south of Enterprise. The alluvial soils along the Hay River have a high potential for market gardening and are also in demand for urban and recreational development. There are approximately 109 000 hectares of class 5 land which could be seeded to forage and used in conjunction with grain land for livestock operations or mixed farms. However, it should be noted that there is no grazing land in this area.

Overview:

Agricultural potential in this valley is limited because most of the soils are class 5 and 7. Nevertheless, Hay River has a railway and highway linkage to Alberta giving the area the potential opportunity to develop as a fringe agricultural area attached to the Peace River region.

Liard and Mackenzie River Area:

The area is in the southwestern corner of the Northwest Territories. It includes land adjacent to the Liard River from the British Columbia border to the Mackenzie River and along the Mackenzie River to Camsell Bend. There are approximately 441 000 hectares of class 3 and 4 soils or 35 percent of the area and 500 000 hectares of class 5 soils in the Liard-Mackenzie area which includes another 22 000 hectares of class 2 soils near Fort Liard and soils almost as good, but requiring some irrigation, near Fort Simpson.

The Laird Valley has the highest overall capability for agriculture based on cultivated crops of all areas so far studied in the Northwest Territories. The main deterrent to agriculture in the Liard is the high cost of clearing trees. Secondly, another major constraint is the lack of native grazing and hayland because of the heavy forest cover. Thirdly, potential land use conflicts exist because some of the better agricultural soils have a high capability for

forestry, wildlife, recreation, industrial and urban development (Fort Simpson and Fort Liard). Lastly, the Liard Highway will not be completed until the mid-1980s. Even when the highway is completed the distance from southern markets and the territorial population centers around Great Slave Lake will keep transportation costs high enough to limit immediate agricultural development.

Production of oats and barley is possible on soils classified as 3 or 4 agricultural capability. The frost-free period is too short to consistently mature wheat. Average yield at Fort Simpson Experimental Farm was 70 bushels per acre for oats, 45 for barley.

Results from the Fort Simpson Experimental Farm (1947-1969) have demonstrated that with proper practices most of the common vegetables yield good crops. Conservative production estimates are 10-12 tons/acre for potatoes, carrots and beets, and 12-15 tons/acre for cabbage and cauliflower. Generally local vegetable production is possible and desirable.

Community pastures could be established on class 3, 4 and 5 soils. However, costs of clearing land and building fences are high. Furthermore, evidence from other attempts at raising livestock in the north indicate that the climate, predators, insects, equipment costs and a lack of markets are strong factors working against it being a successful enterprise.

Overview:

The Liard-Mackenzie area has considerable potential for devleoping sound agricultural practices. On the long-run northward agricultural development into this area seems inevitable.

OTHER CONSIDERATIONS:

Oil and Gas:

One of the biggest impediments to selecting the best farm lands for agricultural development is the potential land use conflicts with the oil and gas industry. This

problem would be more acute in the Liard after the highway is completed bringing with it an increase in exploration. However, construction of the Liard would provide the necessary accessibility and make development of those areas economically feasible. Furthermore, it is felt that agricultural development would pose less problems if started on land not presently held by exploration companies or if started in those areas where companies have finished their exploration.

Land Freeze:

On January 10, 1975, the former Minister of Indian and Northern Affairs imposed a land freeze on all outstanding agricultural enterprises larger than market gardens. The reasons for this are twofold. First of all the freeze was implemented because of the controversial native politics surrounding land claims. Secondly, the freeze would give the various governments departments involved time to prepare a comprehensive agricultural policy.

The land freeze in the Northwest Territories is a topic of much concern at present. The main argument against the freeze is that if a person were to apply for land that was suited for agriculture and had no conflicting land uses, it would not guarantee the potential homesteader any success in obtaining that land. What farmers and ranchers want is a clear title to their land if they hope to borrow money from banks or lending agencies to improve their farms, buy machinery or build capital improvements. A lease, many feel does not contribute to business security because the government could refuse a lease jeopardizing a farmer's investment in the land. Secondly, northerners want to see the development of a sound agricultural base in viable regions so they can reduce, as far as economically feasible, their dependence on southern sources of supply. The present freeze some argue is only nourishing this total dependence.

Summary of Prospects for Developing Agriculture in the Northwest Territories:

Most studies to date indicate that the soils and climate in the Northwest Territories are potentially suitable for supporting agricultural development on several millions of acres. Nevertheless, the question which first comes to mind is; why have agricultural development? Will the population

of the territories increase enough over the next decade to warrant the needed investment in land and equipment? At present, there is not a great need for Canada to produce more grain and livestock. Even if the demand increased for more Canadian grains, it would be less costly to develop marginal land in Saskatchewan and Alberta. Not only is the infrastructure in place in these two provinces, but the law of comparative advantage favours prairie production as opposed to production in the north.

Market Gardening:

It has been estimated that, if residents of the north consume as much as the average Canadian, and yields are 70 percent of those obtained in the south, then a population of 5 000 could be supplied by 40 acres of potatoes, 5 acres of cabbage and other greens, 3 acres of carrots and smaller acreages of salad crops, beets, strawberries and so forth. Thus, local vegetable production is not only possible but desirable.

Grain Crops:

As far as grain crops are concerned, the frost free period is too short to consistently produce mature wheat. However, oats and barley could be produced economically once the land would be broken and fertilized. It has been estimated that a viable grain farm would probably need anywhere from 500-800 acres of cultivated land which would cost from $80 to $200 per acre to clear. Add this to the cost of clearing land to the necessary equipment required to farm and it becomes very clear that farming in the north could be an expensive proposition. At present, the potential for large viable operations seems unlikely until transportation and markets can justify the high annual costs of operating a farm.

Livestock:

As far as establishing any sort of livestock operation in the north the potential is limited. To date, attempts at raising livestock indicate that the climate, predators, insects. equipment costs and lack of nearby markets are strong deterrents of it being a successful enterprise. Due to long

winters, approximately two tons of hay would be required per cow. In addition abour 3-10 acres of seeded pasture would be needed to sustain a cow over the summer months. Consequently, livestock production in the north may not be viable.

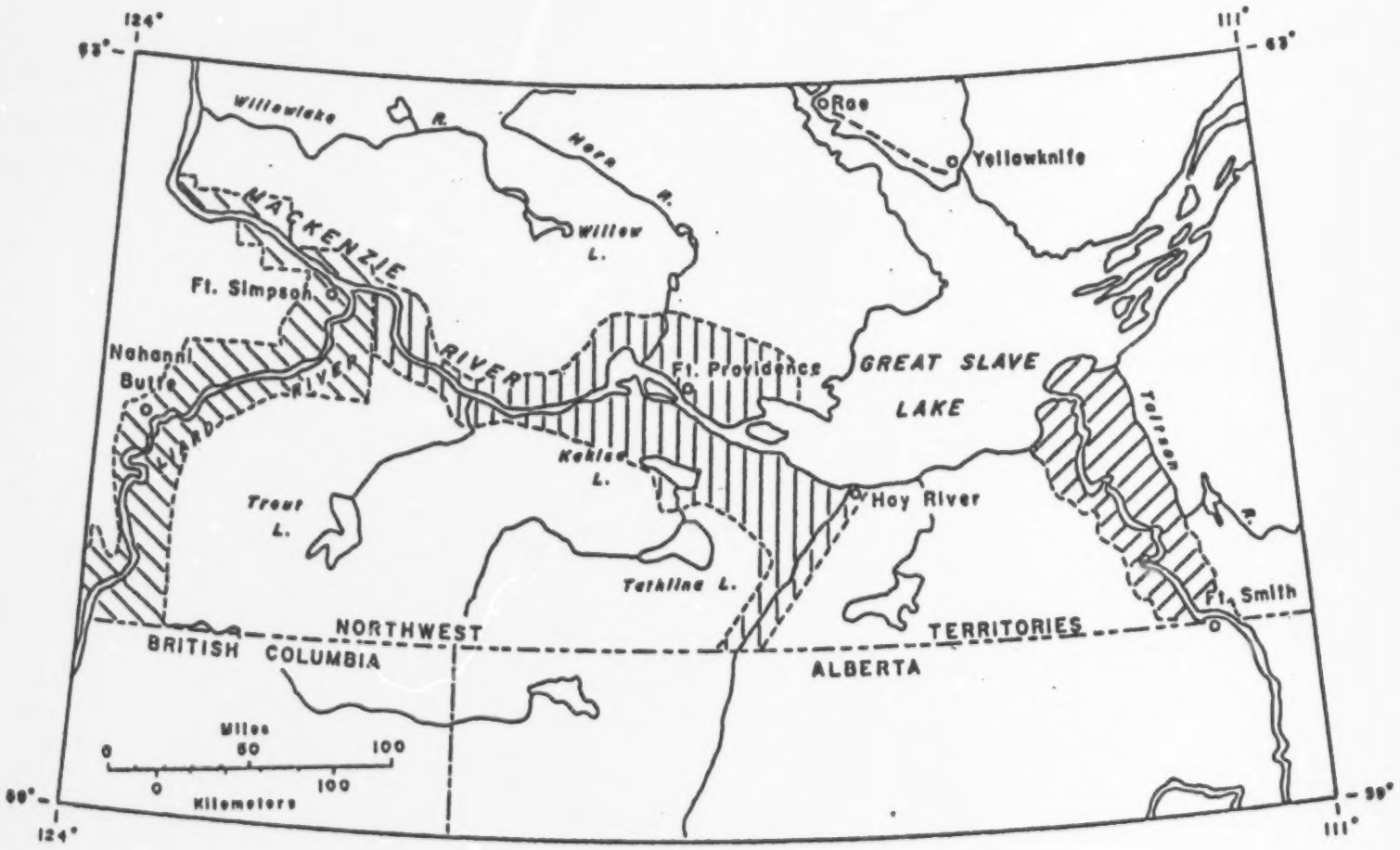
Issues Associated with Agriculture:

1. At present a split in responsibility between the federal and territorial governments exist. The federal government has responsibility for land disposition while the territorial government has responsibility for development of an agricultural policy.

2. No agricultural and grazing policy exists at present. Therefore, those wishing to enter farming cannot purchase land.

Conclusion:

While the present opportunity for viable agricultural enterprises is limited the establishment of small gardens and mixed farms is a necessary prerequisite toward developing a viable agricultural sector in the future. However, those who have visions that an agricultural sector would greatly diversify the economic base of Northwest Territories have an inflated view of its benefits.



Liard and Mackenzie River Area

Upper Mackenzie River Area

Slave River Lowland Area

Figure 1. Location map of survey areas.

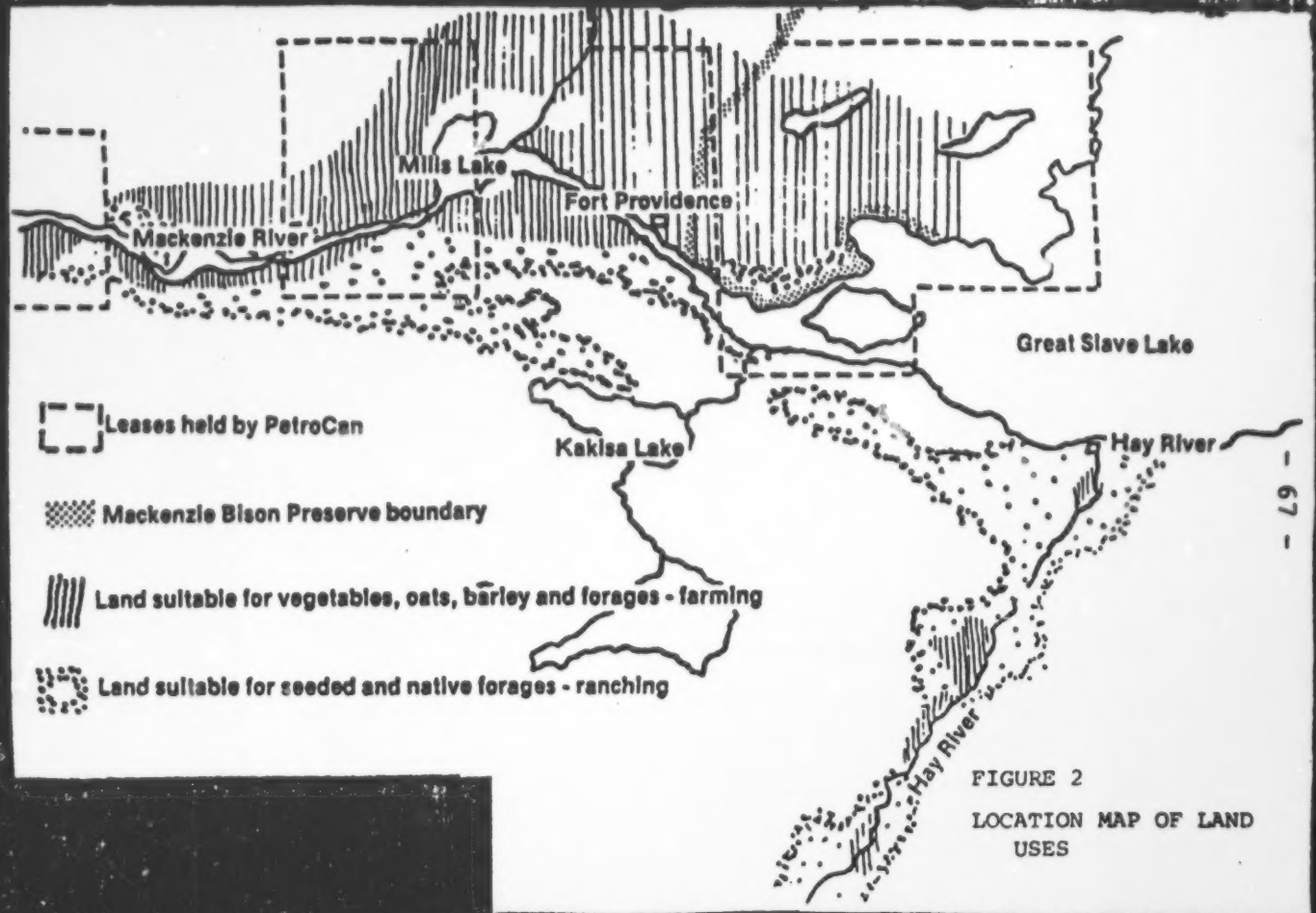


FIGURE 2

LOCATION MAP OF LAND USES

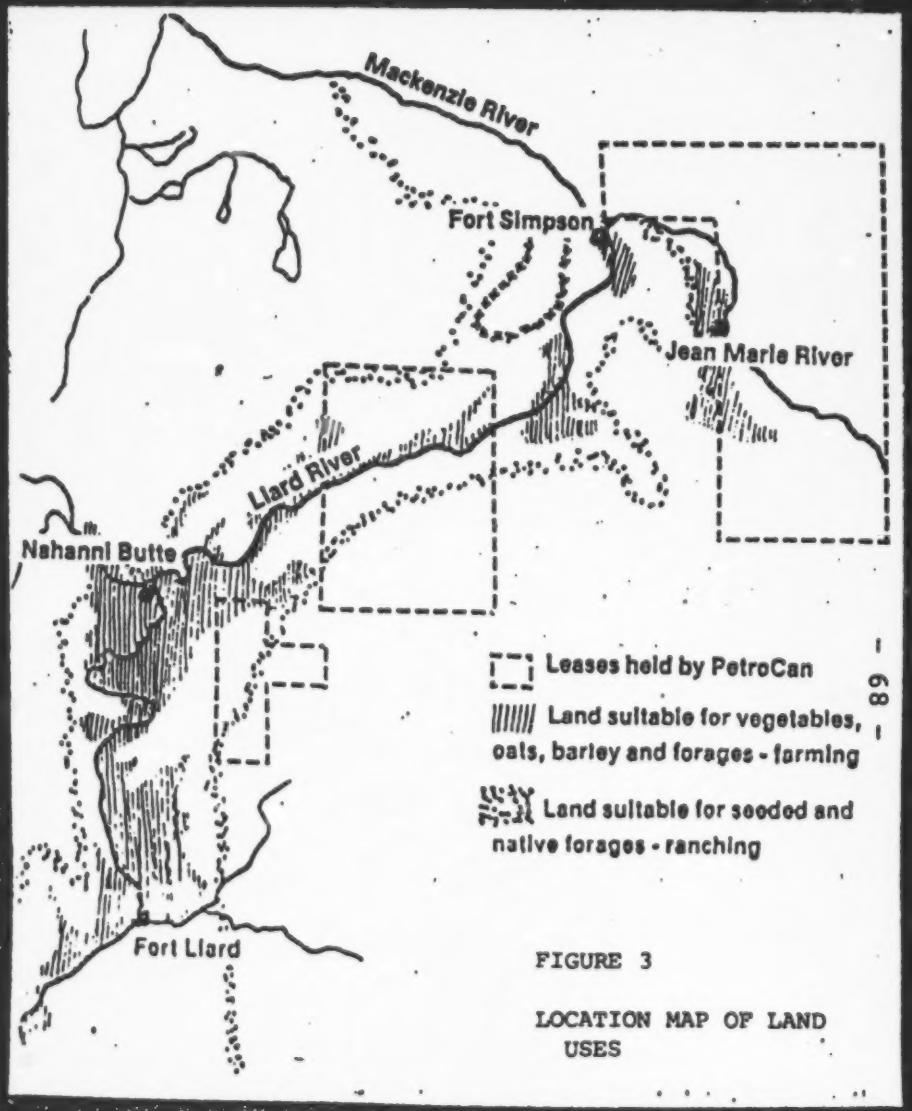

Mackenzie River
Fort Simpson
Jean Marie River
Liard River
Nahanni Butte
Fort Liard
Leases held by PetroCan
Land suitable for vegetables, oats, barley and forages - farming
Land suitable for seeded and native forages - ranching

FIGURE 3

LOCATION MAP OF LAND USES

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TOURISM INDUSTRY

The importance of tourism in the overall economy of the Northwest Territories is increasing and could someday become one of the north's largest renewable resource industries. The purpose of this particular section is to examine tourism in the territories during the 1966-78 period and to identify some of its main characteristics, its growth rate during that period, and new trends that appear to be developing.

Growth of Tourism in the Northwest Territories

Every year, more and more visitors venture to the Northwest Territories. About one-third are from the United States with the majority coming from other parts of Canada, mainly from the provinces of British Columbia, Alberta, Saskatchewan and Ontario. In 1966, there were only about 6 000 tourists who visited the territories. In 1978, there was an estimated 25 000 to 30 000 visitors.*

In 1977, tourist revenue was estimated between $8 to $10 million** as compared to $2 063 000 in 1966. The growth of tourism is also reflected in the number of tourist establishments operating in the territories. In 1966, there were 39 tourist establishments; in 1978, this total more than tripled to a total of 122.

Constraints to Development

(1) The Northwest Territories has a poor competitive position in comparison to Yukon which in 1978 attracted in excess of 300 000 visitors. Many visitors to Yukon are Americans on their way to Alaska.

(2) Population distribution in the Northwest Territories is characterized by point development. Thus, most small historic centres are inaccessible by roads and are long distances from one another which constrains visitors from going to visit them.

(3) Distances between scattered and remote centres of population in the north and to cities in the south are enormous and the costs of overcoming this barrier are very high.

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*Attached report of "Highlights of Northwest Territories Auto Exit Survey -- 1978".

**1978 tourist expenditures are not available.

(4) Between 1966 and 1971, it was found that the type of person visiting the north was relatively wealthy, especially the group visiting lodges and outfitters. Thus, if the territories hope to attract substantial numbers of tourists, they must make the region more accessible to others than the wealthy or professional traveller.

(5) As previously mentioned, the territories lack highway routes into many areas and those that exist are, in most cases, not paved. On the few roads that exist, services are few and far between so extra precaution has to be observed whenever motoring long distances.

(6) The costs incurred in travelling in the north are higher than those for the south. Hotel rates and good prices to name a few examples are much higher in the territories compared to the south.

(7) The tourist season, due to climatic constraints, is restricted to the summer months. There is some potential for winter sports, ice fishing and so forth, but the opportunity for immediate expansion would not appear high at this time.

Related Issues:

Only about 24 percent of all the lodges are privately owned by residents of the Northwest Territories. Indications are that most of the lodges' staff come from outside the territories; therefore, a lot of the income generated by the tourist trade goes to people outside the territories with little benefit to the territorial economy.

LICENSED ACCOMMODATION AVAILABLE TO TOURISTS BY TYPE OF ESTABLISHMENT
NORTHWEST TERRITORIES, 1969 TO 1979

Type of Establishment	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Hotels and Motels	19	24	24	32	33	38	38	38	38	44	44
Sport Fishing Lodges	25	27	33	34	37	37	41	43	45	46	46
Sport Fishing and Big Game Outfitters	25	21	21	23	28	29	29	29	29	29	29
Others	-	-	2	3	2	4	3	3	3	3	3
TOTAL	69	72	80	92	100	108	111	113	115	122	122

Sources: Northwest Territories Statistical Abstract 1977, Department of Indian and Northern Affairs

Statistics Canada, Cat. No. 66-202

Explorer's Guide 1979, Northwest Territories

NUMBER OF TOURIST ESTABLISHMENTS
NORTHWEST TERRITORIES, 1959 TO 1979

Year	Number of Tourist Establishments
1959	4
1960	8
1961	10
1962	14
1963	10
1964	14
1965	23
1966	39
1967	51
1968	61
1969	69
1970	72
1971	80
1972	92
1973	100
1974	108
1975	111
1976	113
1977	115
1978	122
1979	122

Source: Northwest Territories Statistical Abstract 1977, Department of Indian and Northern Affairs

HIGHLIGHTS OF NORTHWEST TERRITORIES AUTO EXIT SURVEY -- 1978

Introduction

Between May 29 and September 14, an auto exit survey was conducted on the Mackenzie Highway at Enterprise, Northwest Territories. A representative sample of nonresident vehicles was selected from all exiting traffic and an interview was conducted with the drivers of each vehicle. The total number of vehicles stopped was 417. The sample was projected to a total of 3 071 vehicles for the summer period. The survey results indicate that during the survey period, there were approximately 8 665 automobile visitors to the Northwest Territories (see Table I).

Table I Automobile Visitors to the Northwest Territories -- Summer 1978

	Unweighted Sample	Number of Vehicles	Number of Visitors
May*	3	77	282
June	78	533	1 430
July	195	1 397	4 148
August	121	909	2 495
September**	19	155	310
TOTAL	417	3 071	8 665

*May 29 to May 30
**September 1 to September 14

Purpose of Trip

Thirty-five percent of the visitors said their main purpose of the trip was to visit friends or relatives. The second most important purpose was to sightsee and do things away from cities or towns (15 percent). Of those respondents who gave a secondary reason, 20 percent said they were interested in fishing, boating, etc. or sightseeing away from cities or towns.

Table II

Purpose of Trip	% of Respondents: Main Purpose	% of Respondents: Secondary Purpose
Business only	8	1
Business and pleasure	7	2
Just passing through	1	-
Visit friends or relatives	35	3
Spend time at a vacation spot or wilderness lodge	4	2
Sightseeing and doing things in cities and towns	6	6
Sightseeing and doing things away from cities and towns	15	10
Camping and tenting	6	4
Fishing, boating, etc.	11	10
Shopping	1	2
Other	6	1
No secondary purpose		59

Mode of Transportation

Thirty-eight percent of visitors travelled to the Northwest Territories in a car; 27 percent went in a truck camper. Motor homes and car trailer combinations accounted for another 14 percent.

Table III Type of Vehicle of Automobile

Travellers to Northwest Territories -- Summer 1978

Type of Vehicle	Percent of Vehicles
Car only	38%
Car and tent trailer	2%
Car and travel-trailer	4%
Truck camper	27%
Motor home	8%
Station wagon	2%
Van	6%
Other	12%
Total automobiles	3 071

Origin of Visitors

The majority of auto visitors are Canadian residents (79 percent), and the majority of these are from the west (Alberta, 48 percent; British Columbia, 10 percent; Saskatchewan, 7 percent). The major United States originating states are also in the mid-west.

Table IV Origin of Automobile Travellers to the Northwest Territories -- Summer 1978

	Percent of Visitors
Canada Total	79%
Ontario	9%
Manitoba	3%
Saskatchewan	7%
Alberta	48%
British Columbia	10%
Other provinces	2%
United States Total	20%
Florida	1%
Michigan	1%
Wisconsin	1%
Minnisota	3%
Utah	1%
Colorado	1%
Oregon	1%
California	2%
Other states	9%
Other Countries	1%
Total Visitors by Automobile	8 665

Length of Stay

Overall, automobile visitors stayed an average of nine nights in the Northwest Territories. Their average trip length away from home was 24 nights.

Party Size

The mean party size was 2.8 persons per vehicle. Twenty-eight percent of vehicles, however, did contain four or more persons.

Use of Border Reception Centre

Fifty-three percent of the respondents said they had made use of the Border Reception Centre. Only three percent said they had not seen it. Of those who stopped at the Centre, 83 percent said they had found it useful.

Income and Occupation of Visitors

Table V indicates that 31 percent of the Northwest Territories automobile visitors are professionals and 25 percent are skilled labourers.

Table V Occupation of Head of Household

Professional	31%
Sales/Clerical	9%
Skilled Labourer	25%
Unskilled Labourer	8%
Farmer	8%
Student	4%
Retired/Unemployed/Homemaker	15%
Not Stated	-

The total annual household incomes of visitors are high. Approximately 44 percent earn $20 000 and over. Those earning below $7 500 are likely unemployed or retired.

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MANUFACTURING

Little manufacturing as defined by the Dominion Bureau of Statistics is carried on in the territories. The Bureau's most recent statistics show that, in 1977, there was a total of 14 manufacturing establishments employing a total of 148 workers. The greatest part of this industry has been closely tied to the petroleum and forestry operations, for the refining of crude oil at Norman Wells, and the production of sawn lumber in the sawmills scattered throughout the territories. Based on 1977 statistical data, the 148 employees earned a total of $2 500 000 in wages. This compares with 18 establishments in 1976 with total wages of $2 438 000.

Constraints to Development:

It is somewhat unrealistic to think that secondary manufacturing depending upon markets outside the territories and in competition with goods produced in southern Canada could succeed in a large scale in the Northwest Territories without subsidy. Not only are costs of fuel and electricity higher there, but also skilled labour may be difficult to attract without substantial cash incentives. Finished products and materials used in manufacturing, unless obtained locally, would have to be shipped long distances which again adds to cost. However, there is potential for certain manufacturers as long as transportation costs of goods produced in the provinces are greater than the higher cost of manufacturing in the Northwest Territories.

Cooperatives a d Crafts:

Production of arts and crafts is under the jurisdiction of the territorial government. The federal government provides material, financial and technical assistance, promotion and protection and monitoring services, as well as instruction.

In 1965, the federal government, through the Department of Indian and Northern Development along with the Cooperative Union of Canada, jointly sponsored the establishment of the Canadian Arctic Producers. It was set up as a private, nonprofit, government-subsidized cooperation to act as a central marketing agency. The cooperatives themselves are involved in the exploitation of local resources and place

finished products with above-average labour content in both southern and northern markets. Experimentation and research have centred upon the development of native art and handicraft.

Today, cooperatives form an important segment of the total economic structure in the Northwest Territories. Cooperatives are the largest business sector owned and operated by indigenous people of the territories. This, coupled with the diversity of activity engaged in by cooperative enterprises, makes the impact of cooperative activity on the territorial economy of considerable importance.

In 1977, direct wages and benefits to northern communities through arts and crafts production amounted to nearly $2.6 million. Membership in the territorial cooperatives now approximates 3 494 members. Of this total in 1977, 395 persons were directly employed in the cooperatives. The average income of these employees in 1977 was $6 488, an increase of almost 16 percent over 1976.

In terms of value, soapstone carvings led all other Eskimo arts and crafts products. They are followed in turn by prints, handicrafts of other types, stationery and garments.

Generally, cooperatives provide a significant source of income to residents of the Northwest Territories. The impact of this income is intensified even more when it is noted that the vast majority of the employment opportunities generated are provided in the smaller, remote communities of the north where jobs are scarce and unemployment high.

Constraints to Development

(1) Handicrafts production must compete with other available sources of income. If other occupations offer higher economic rewards, then handicrafts may be abandoned in favour of other employment.

(2) It is difficult to determine if this industry can expand much more because the products sold must be of high quality and rely particularly on southern markets for sales. Originality tends to be lost when forms continue to express motifs which are no longer relevant to the life of the craftsmen. Consequently, handicrafts are more valuable when arts express activities which the artist is totally familiar with.

Potential

Government efforts to date with respect to arts and crafts have ensured that standards of production and quality have been maintained. Skillful promotion in large southern cities and improved marketing methods have helped to sustain demand and price. As a result, the outlook for continued growth of the industry appears encouraging.

PRINCIPAL STATISTICS OF THE MANUFACTURING INDUSTRIES
NORTHWEST TERRITORIES, 1965 TO 1977

Year	Number of Establishments	Manufacturing Activity						
		Workers	Man-Hours Paid ('000)	Total Wages	Fuel and Electricity	Materials and Supplies Used ($'000)	Shipments of Goods of Own Manufacture	Added Manufacturing Activity
1965	6	55	126	398	28	1 952	2 684	743
1966	10	63	129	448	31	2 154	3 017	914
1967	9	55	114	446	29	1 917	2 821	867
1968	14	72	148	549	31	2 040	3 341	1 296
1969	13	85	177	665	40	2 090	3 545	1 394
1970	15	143	292	1 049	63	3 616	4 976	1 703
1971	14	134	292	1 081	134	3 700	5 432	1 719
1972	15	142	309	1 150	160	3 276	5 395	2 712
1973	13	134	296	1 158	116	4 090	6 689	2 299
1974	12	126	271	1 201	135	5 470	6 656	2 049
1975	17	186	394	1 788	225	7 301	11 438	3 900
1976	18	-	-	2 438	-	-	-	-
1977	14	148	-	2 500	-	-	-	-

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ELECTRICAL POWER

Generating Capacity

The electrical power generating capacity of the territory is 128 megawatts. This is comprised of 48 hydro, 75 internal combustion and 5 gas turbine generated megawatts.

Northern Canada Power Commission (NCPC)

This federal crown corporation was established under the Northern Canada Power Commission Act in 1948. It is involved in the planning, construction and management of public utilities. NCPC operates the main electrical transmission network in Yukon and the Northwest Territories and is also the principal producer of electrical power.

The Commission is required to provide power at cost, which includes amortization of debt, operating expenses and an amount sufficient to establish a contingency fund. In 1978, the Commission provided retail electric utility to 48 communities in the Northwest Territories; in addition, it supplied wholesale electrical energy to distributors in Yellowknife.

Issues Related to Hydroelectric Power Development

The major issue related to hydroelectric power development is what should be the objective of such development? A major objective of hydroelectric power investments could be to help stimulate economic development by providing low-cost electricity to energy intensive industrial projects. However, several considerations enter into a decision of this objective. One is that provision of electric power to stimulate large resource developments could be financially risky for the taxpayers of Canada generally and for industrial power users in the north particularly for, if the large resource developments fell through, the taxpayers and residential ratepayers foot the bill.

Another consideration is whether energy-intensive industries will provide the kind of employment opportunities the people of the north would like to have. Thus, should NCPC invest in high-risk facilities to stimulate economic development or should it invest in facilities with a view of supplying clearly established demands?

Economic Growth Issues Related to Hydroelectric Development

Small scale hydroelectric developments near communities could provide sufficient energy to promote community socioeconomic stability through support of diverse renewable resource activities including food processing, garment manufacturing, sawmilling, fur farming, craft work, marine oil processing and tourism. Polar Gas Pipeline proposals would also increase the pressure for development of hydroelectric power.

Areas of Potential Development

(1) Slave River.

(2) Great Bear River -- proposed in 1971 by NCPC for hydroelectric development; idea has been temporarily shelved.

(3) Hydroelectric power potential of the Thelon, Hanbury, Dubawnt and lower Kazan Rivers was investigated in 1970. Environmental studies, however, have not been carried out yet.

Constraints to Development

There is substantial hydroelectric power potential in the north as demonstrated by various studies that have been made of this resource. However, there are two major problems that are encountered in proceeding with any developments. One problem arises because of the serious environmental effects of at least some hydro development projects. For example, fishery resources can be adversely affected and scenic and recreation values can be impaired. A second problem arises because projected demands are influenced so greatly by the prospects of large individual projects. Future demands in the north depend in large measure upon whether mines are opened up, pulp mills established, or other large operations are undertaken. This fact means not only that firm decisions about power development must be coordinated with individual decisions of potential large users, but that, in addition, the economic viability of the power development is largely dependent upon the economic viability of single large users. If the large user is forced to close down, the hydro power developer is faced with a loss that cannot be recovered.

ELECTRIC POWER CAPABILITY AND PEAK LOAD IN MEGAWATTS
NORTHWEST TERRITORIES, 1967 TO 1982

Year	Type of Station				Total Installed Generating Capacity
	Hydro	Steam	Internal Combustion	Gas Turbine	
1967	35	1	10	1	47
1973	35	1	43	2	81
1974	35	1	45	2	83
1975	35	1	61	2	99
1976	35	-	66	2	103
1977	48	-	64	2	114
1978*	48	-	75	5	128
1979*	48	-	75	5	128
1980*	48	-	75	5	128
1981*	48	-	75	5	128
1982*	48	-	75	5	128

*Forecast

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TRANSPORTATION NETWORKS IN NORTHWEST TERRITORIES

Air:

Air transport is the single most important means of travel in the north in terms of passenger traffic, primarily because of the great distances between settlements and the remoteness of their location.

The Northwest Territories is served by three major regional carriers. In the east, Nordair Limited provides jet service from Montreal to Fribisher Bay, Resolute, Hall Beach and Strathcona Sound. Transair Limited provides jet service from Winnipeg to Churchill, Eskimo Point, Rankin Inlet, Baker Lake, Coral Harbour, Hall Beach, Resolute and Whitehorse via Yellowknife. To the west Pacific Western provides regularly scheduled jet service from Edmonton to Fort Simpson, Hay River, Yellowknife, Norman Wells, and Inuvik in the western Arctic, as well as to Cambridge Bay and Resolute Bay.

Of major importance in many communities are the local carriers which fly within the Northwest Territories. In 1979, there were an estimated 45 local carriers and private air charter companies serving the territory.

Water:

Water transport is second in importance in the Northwest Territories accommodating the greatest proportion of the freight transported in. Every year annual requirements of private individuals, business and government are ordered from the south and shipped by rail or road to the barge terminal at Hay River. There the materials are loaded onto barges for distribution to more than two dozen communities scattered over 2 000 miles along the Mackenzie River and Arctic Coast.

In the Eastern Arctic and along the Hudson Bay, about 18 communities are resupplied from Montreal each year by six ships. In 1976, 8 500 people were resupplied by this mode of transport.

Roads:

There are two main classes of roads in Northwest Territories: communication roads and resource roads. The communication roads are those highways, major roads, secondary and local roads which provide a primary network of roads for communication within the territory, and include north-south connecting links with the provinces and eastwest connecting links between each territory. Some of the more important roads include the Dempster Route and Mackenzie Highway. The resource roads are those which lead from a communication road to a location where exploration, development or exploitation of one or more natural resources is being carried out. An example of this is the Nahanni Range Road, which runs off the Campbell Highway, to the mining town of Tungsten.

Major Road Projects:

Dempster Highway:

This highway was officially opened during the summer of 1979. The road was originally built "to encourage the economic development of Yukon and Northwest Territories". The Dempster links Inuvik, Arctic Red River and Fort MacPherson with Dawson in Yukon and distance of 671 km.

At present the Dempster Highway provides an important link to the Eagle Plain area in Yukon. However, contrary to early estimates the area has been shown to be a small hydrocarbon area - one-tenth the size of the Mackenzie Delta hydrocarbon region. In the near future the Dempster should prove an invaluable asset to the two territories when it becomes a supply route to the Mackenzie Delta and offshore development in the Beaufort Sea.

Liard Highway:

In 1978, approval was announced for the 160 mile Liard Highway which will be built during the next five years at an estimated cost of $40 million. The road will link Fort Nelson in British Columbia and Fort Liard, NWT with the Mackenzie Highway System near Fort Simpson. The road is expected to open up new areas for development, including such activities as lumbering and mineral exploration.

Rail:

Rail facilities in Northwest Territories total about 170 miles of track. At present, rail service extends from Edmonton to Hay River and Pine Point on the south shore of Great Slave Lake. These are the only two NWT communities with rail service.

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OVERVIEW OF ECONOMY

At present Northwest Territories is experiencing a lack of real growth in most sectors of the economy. The only sectors which appear to have definite growth potential are the nonrenewable resource industries and, to a lesser degree, tourism and transportation. Specifically, drilling in the Beaufort Sea has lead to a major gas find and a gas plant has been proposed as a pilot project on Melville Island. In addition, proposals for various pipeline routes, particularly by Polar Gas are being examined, but as yet no definite development has occurred. The mining industry also appears bright, at least in the short run. Exploration for new deposits is expected to continue at a steady pace. In addition, several new mines are being proposed for the early and mid 1980s. Tourism is expected to grow steadily in the long run. At present, the territorial government and tourist industry are preparing a strategy development plan to maximize benefits for northerners. In the short run the transportation sector should continue growing because of major capital outlays on the Liard Highway, Mackenzie Highway (temporarily suspended) and possible road from Fort Smith to Fort McMurray Alberta.

Generally, most other sectors will tend to grow slowly, if at all, on the short run. Major constraints such as competition with southern markets, lack of infrastructure and isolation from large markets tends to hamper their growth.

In conclusion, the territorial economy can best be described as being in a "temporary hold position". Several major projects are being proposed which could stimulate the economy but to date no firm commitments have been made.